DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS

BEACH EROSION BOARD
OFFICE OF THE CHIEF OF ENGINEERS

WAVE AND LAKE LEVEL STATISTICS FOR LAKE ERIE

TECHNICAL MEMORANDUM NO. 37

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BEACH EROSION BOARD

CORPS OF ENGINEERS

MARCH 1953

FOREWORD

This is the second of a series of reports to be issued by the Beach Erosion Board under its General Investigations program to provide wave statistics for selected regions. The need for such data is evident, and it is planned ultimately to supply it by actual wave measurement for sufficiently long periods to establish the wave climate at many locations. Suitable instruments for that purpose have not yet been developed and even after they become available much time must pass before the records can attain statistical value. The production of wave statistics by "hindcast" technique, admittedly of presently indeterminate quantitative accuracy, will nevertheless provide the engineer with better wave data than have heretofore been available.

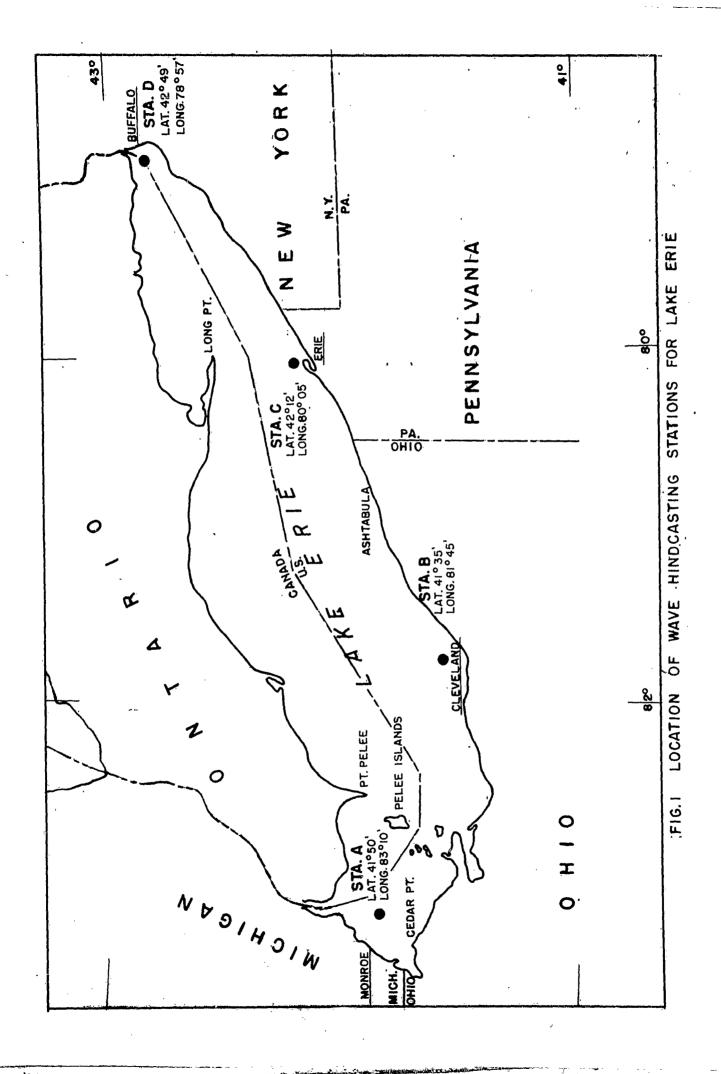
Thorndike Saville, Jr., author of the report, is a Hydraulic Engineer in the Research Division of the Beach Erosion Board under the supervision of Joseph M. Caldwell, Chief of the Division. At the time this report was prepared, the technical staff of the Board was under general supervision of Colonel E. E. Gesler, President of the Board and R. O. Eaton, Chief Technical Assistant.

The author was aided in the study by Robert F. Dearduff, Hydraulic Engineer; by Morrison G. Essick, John C. Fairchild, Francis W. Kellum and Herman P. VanEckhardt in computations and compilations; in map reduction by Carleton L. Bell, George P. Cummings, Lowell E. Finch, Richard E. Nearman and John J. Sharer; and in drafting by Wendell E. Reece. The report was edited for publication by Albert C. Rayner. Views and conclusions stated in the report are not necessarily those of the Beach Erosion Board.

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WAVE AND LAKE LEVEL STATISTICS FOR LAKE ERIE

by

Thorndike Saville, Jr.
Hydraulic Engineer, Research Division,
Beach Erosion Board, Corps of Engineers

INTRODUCTION

The General Investigations program of the Beach Erosion Board comprises investigations, regional rather than local in scope, designed to improve, simplify, and expedite the solution of local problems, by giving a compilation of all existing data pertinent to shore processes in the particular region. As a first step in the compilation of these data a study of wave and lake level conditions on the Great Lakes is being made. The results of such a study for Lake Erie are presented herein.

WAVE STATISTICS

Four stations on Lake Erie were selected for a comprehensive wave analysis, the locations (see Figure 1) being as follows:

Station	Latitude	Longitude	<u>Vicinity</u>
A	41°50' N	83°10' W	Monroe, Michigan
В	41°35' N	81°45' W	Cleveland, Ohio
C	420121 N	80°05' W	Erie, Pennsylvania
D	42°49' N	780571 W	Buffalo, New York

These particular stations were selected since it was thought that they would give adequate coverage to the entire lake shore in the United States, and permit interpolation of values between stations, thus giving an accurate representation of wave action at any point along the United States shore line.

Wave characteristics were determined from synoptic weather charts for each station for the three-year period 1948-1950. The weather maps used were the United States Surface Synoptic Charts compiled at sixhour intervals by the U. S. Weather Bureau. Fetch areas, and the wind speeds and durations in these areas, were determined directly from the weather maps; these values were used with curves derived by Sverdrup and Munk (1)* and revised by Arthur (2) to obtain the hindcast wave

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*Numbers in parenthesis refer to References on Page 14.

characteristics. The revisions in the curves recently suggested by Bretschneider (3) were not employed, hence the wave periods determined may be expected to be slightly low. The only major variation from the usual methods of wave forecasting or hindcasting (4) was that the surface wind was determined directly from reported observations rather than from a gradient wind determined from the isobar spacing. It was thought that with the lake area so small in comparison to the area of the pressure cell, the isobaric pattern on the surface would be influenced to a large extent by the surface topography, and gradient winds determined from the isobar spacing would not necessarily give true values of wind velocity over the lake surface. Hence reported values of the surface wind could be expected to give a more realistic figure of the wind velocity. Observations have shown (5) that the greater surface friction serves to reduce the wind over land from what it may be over water. Since the reported values were almost always obtained at land stations, the wind speeds used in the analysis may have been lower than those actually occurring over the lake in the generating area. Some compensation was made for this by selecting the top speed of the Beaufort range reported rather than the middle value.

The wave characteristics thus determined are for the significant wave -- that is, the period is that of the predominating waves, and the height is the average of the higher one-third of these predominant waves. These values are summarized for each station in Tables A-1 through D-1 (Appendices A through D). It should also be noted that the wave conditions given in these tables are deep water conditions. They must be used in conjunction with refraction diagrams to obtain inshore values. The tables show, for each station, the number of hours duration that deep water waves of any given height, period, and direction occurred during any month of the three-year period; and also for each month (as summations) the number of hours' occurrence of waves of any particular height and period exclusive of direction; the number of hours' occurrence of waves of any particular height and direction exclusive of period; and the total number of hours' occurrence of waves of any particular height.

As an example of the data presented, from Table B-1 (Table 1 for Station B) for the month of July, waves of 1 to 2-foot height and 2 to 3-second period from the north occurred for 6 hours during 1948, 18 hours during 1949, and 12 hours during 1950. Thus, waves of this category occurred for a duration of 36 hours during the three-year period and hence can be expected to occur for about 12 hours (on the average) during July of any year in the future. Waves of 1 to 2-foot height and 2 to 3-second period (from all directions) occurred for 120 hours over the three-year period, or an average of 40 hours per year. Waves of 1 to 2 foot height from the north (all periods) occurred for 66 hours over the three-year period, or an average of 22 hours per year. Waves 1 to 2-foot height (all periods and all directions) occurred for 198 hours over the three-year period, or an average of 66 hours per year.

Tables A-2 through D-2 show the summations of the values in Tables A-1 through D-1 for the entire year, and are read similarly to those tables.

During much of the winter season portions of the lake are covered with ice, and fetch areas are limited considerably. In addition, for a somewhat greater portion of the winter season, the coast area of the lake is covered with ice, and, even though waves are generated in offshore areas, they never reach the shore, being interrupted by the ice around the rim of the lake. No account of this effect of the ice was taken in the actual hindcasting of the waves, and the durations given for the various winter months are computed as though there were no ice on the lake, a fact that should be remembered in using these data.

From yearly records of lake and air temperatures, and the dates of opening and closing of the lake for navigation, an average ice-free period was determined. For Lake Erie this appeared to run, on the average, from April through November, and the average ice-free period was determined as 1 April - 1 December for all four stations. A summation of the wave data for this ice-free period is shown in Tables A-3 through D-3. These tables are similar to Tables 1 and 2, and represent a summation of the values in Tables 1 for all months from April through November. The durations of waves of particular height and direction have also been tabulated as percentages of time for the three-year period and are shown graphically in the wave roses for the full year and also for the ice-free period in Figures A-1 through D-1. In these roses, as in all other curves contained herein, the durations are percentages of 365 days, for the ice-free period as well as the full year data.

Figures A-2 through D-2 show the total percentages of time that the wave height may be expected to be greater than any particular height throughout the year. They thus show the (average) total duration time of specific waves over the year. Two curves are shown, one based on the data gathered for the entire year's period, and the other on just the average ice-free period (April through November). For example, at station B, the total duration of waves in excess of 10 feet in height during the ice-free period is expected to be 0.09 percent of the time; and 0.13 percent of the time during the full year. Hence waves 10 feet or higher can be expected to occur for a total duration of 11.5 hours $(0.0013 \times 365 \times 24)$ over the course of each year, and, of this, 8 hours $(0.0009 \times 365 \times 24)$ will be during the ice-free portion of the year when the waves will be certain to reach the shore.

Figures A-3 through D-3 show the frequency with which storms resulting in waves higher than a given height can be expected to occur. For example, at station B, on 0.56 percent of the days each year the waves may be expected to be ten feet or greater in height, and on 0.29 percent of the days they may be expected to reach this height during the ice-free portion of the year. Thus waves ten feet or higher may be expected to occur (on the average) twice each year (0.0056 x 365); of these occurrences, only one (0.0029 x 365) will be expected to occur during the ice-free portion of each year.

Combining the data obtained from graphs on Figures B-2 and B-3, waves ten feet and higher may be expected to occur at Station B about twice each year, and the average duration of each storm will be about 6 hours. During the ice-free portion of the year, waves of ten feet and higher may be expected to occur only once, and the duration of this storm is expected to be about 8 hours.

There are, in general, two methods of plotting points to obtain frequency ourses such as those shown in Figures A-3 through D-3. One, based on the so-called theory of sampling, involves the assumption that the known period of record (three years) is a fair average sample of all similar three-year periods over an infinite number of years, and that therefore the largest storm of this three-year period is the median of all storms of the same class in all other three-year periods. This results in a frequency given by the following equation.

$$F = \frac{2N-1}{2T} \times 100$$

where

F = frequency (in percent) of the occurrence of storms equalling or exceeding the given storm

T = number of days of record

N = number of occurrences of a storm equal to or greater than the given storm

The second method essentially considers only the period of record, in which case the frequency becomes

$$F = \frac{N}{T} \times 100$$

Values of F are the abscissæs of points on the frequency curve. Using the second equation above, the largest storm which occurred in the known three-year period would have an abscissa of .0914 percent and would represent the storm which would most probably occur once in three years, i.e., would be the "three-year storm", etc. But this would be contrary to the theory of sampling, where (above) the assumption is made that the largest storm in the known three-year period was the median of the largest storms in a long succession of three-year periods. Therefore, over a long period such as 300 years, it will be exceeded not 100 times, but 50 times; i.e. it is by definition not a "3-year storm", but a "6-year storm".

Either of the above equations could be, and have been used to prepare frequency curves. Although the former is the one most generally used for hydrologic data, the latter method has been used in this case. The use of this formula (F = 100 N/T) will result in somewhat more conservative interpretation of the data, and was thought justified in view of the extremely short period of record (3 years).

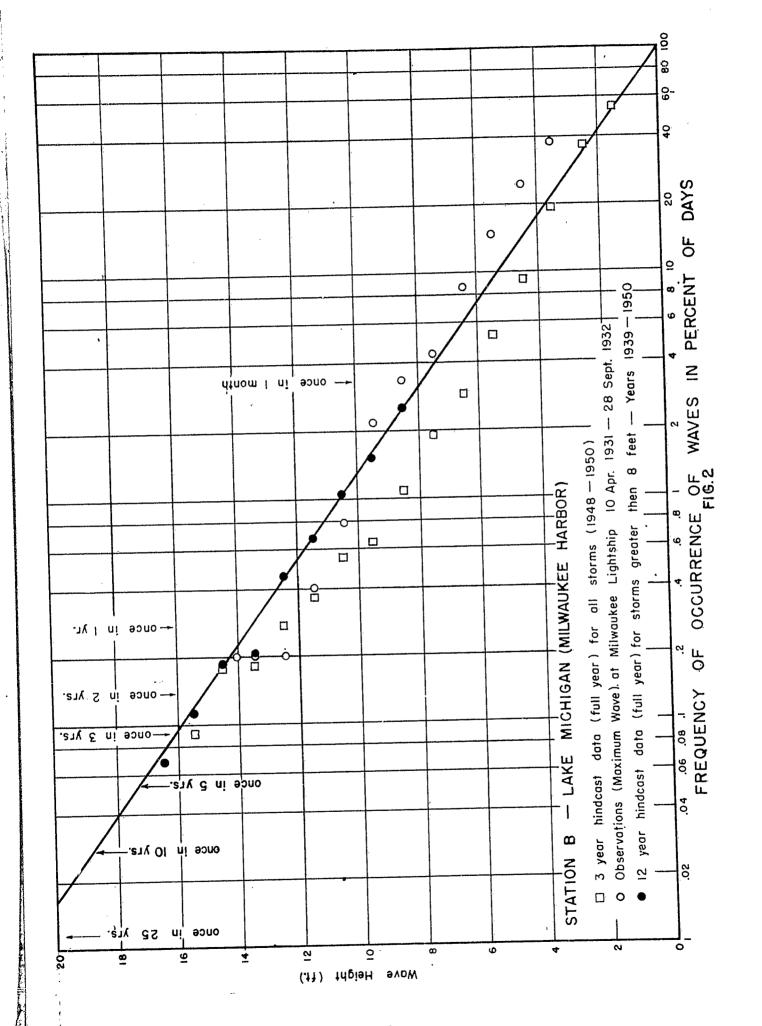
The points plotted may be represented fairly closely by a continuous curve which frequently approximates a straight line, as may be seen from the figures. The curves shown have, in general, been drawn as lines of visual best fit; occasionally, however, more weight has been placed on the higher values, This tends to give a somewhat more conservative interpretation, which is thought warranted in some cases. The user is free to make his own interpretation of the plotted points.

In view of the shortness of the period of record, some doubt may arise as to the validity of extrapolation from these curves, and as to whether the three years chosen were representative (i.e., that they represent average conditions, and not three years of abnormally high or low waves). In a similar report, on Lake Michigan, (6) hindcasts were made for one station for a period of 12 years (1939-1950) for all storms which were expected to give waves greater than 8 feet. The points determined were compared to those determined from the three-wear data. These points fitted a straight line curve very closely and, though the points mostly lay slightly above those determined from the three-year data, the curve was not greatly different from that which had been drawn from the threeyear data. Observations of the "average maximum" wave were obtained at this same station by the Milwaukee lightship over the period 10 April 1931 to 28 September 1932 (7) and these points were also compared to those hindcast. Although the exact correspondence between the significant waves hindcast and the "average maximum" waves observed is not known, values should be closely comparable -- and although the observed points lay somewhat higher for the lower waves, agreement was good for the higher waves. The comparison of these various points is shown in Figure 2.

Although these comparisons were made for a station on Lake Michigan, rather than one on Lake Erie, it is thought that the same degree of accuracy should be observed on Lake Erie, and therefore reasonable confidence can be put in the curves shown, at least for values of the waves occurring with frequencies less than about once in 10 years (with the possible exception of Station A).

Although for structural design purposes the important factor is the size of the maximum probable wave (within a certain time period), for computations involving sand movement and littoral drift, a more desirable parameter would be some averaged factor including within it the effect of both height and period, the variation of these parameters, and the duration that waves of each particular category exist. Present day knowledge indicates that sand movement by wave action is best correlated with the amount of energy transmitted forward (and eventually on to the beach) by the waves. The total energy per unit width in each wave is, in deep water

$$E_0 = \frac{WLH^2}{8} \left[1-4.93 \left(\frac{H}{L} \right)^2 \right] = \frac{Wg}{16\pi} H^2 T^2 \left[1-4.93 \left(\frac{H}{L} \right)^2 \right]$$



where w = unit weight of water = 62.4 lbs./cu.ft.

g = acceleration due to gravity = 32.2 ft./sec/sec.

H = wave height (ft.)

T = wave period (sec.)

L = wave length (ft.)

and

One-half of this energy is transmitted forward from deep water toward the shore, and it is this amount of energy that eventually reaches the shore line. The total energy transmitted forward in any given period of time ($E_{\rm T}$) is then $E_{\rm O}/2$ times the number of waves occurring in that period of time, and

 $E_{\rm T} = \frac{E_{\rm o}}{2} \times \frac{(3600t)}{T} = 7.195 \times 10^{\frac{1}{4}} \, H^2 T \, t \, \left[1-4.93 \, \left(\frac{H}{L} \right)^2 \right]$

where t is the duration of the waves in hours. If some particular time interval (say, one month) is considered during which waves of varying height and period pass a given point toward shore, then the heights and associated periods may be tabulated (as in Tables A-1 through D-1), and there will be n groups. If the height of the ith group is represented by its class mark H_i, and the wave period in that group denoted by T_i, and the duration of the group by t_i, then the total amount of energy transmitted forward during the entire time interval is

$$E_{T} = E_{T1} + E_{T2} + E_{T3} + \dots + E_{Ti} + \dots + E_{Tn}$$

$$E_{T} = 7.195 \times 10^{4} \stackrel{i=n}{\underset{i=1}{\overset{i=n}{\sum}}} H_{i}^{2} T_{i} t_{i} \left[1 - 4.93 \left(\frac{H_{i}}{L_{i}} \right)^{2} \right]$$

Tables A-4 through D-4 show a tabulation of the average energy transmitted forward from deep water toward the shore during the average icefree period in each category of height, period, and direction. Thus, for Station B, waves of 1 to 2-foot height and 2 to 3-second period from the north may be expected to transmit forward toward the shore 4724 x 104 foot-pounds per foot of wave crest each ice-free period. Waves of 1 to 2-foot height and 2 to 3-second period (all directions) would be expected to send forward 21,619 x 104 foot-pounds per foot of wave crest each ice-free period; waves of 1 to 2-foot height from the north (all periods) would be expected to send forward 6165 x 104 foot-pounds of energy per foot of wave crest; and waves of 1 to 2-foot height (all periods and directions) would be expected to transmit toward the shore 29,921 x 104 foot-pounds of energy per foot of wave crest each ice-free period. Tables A-5 through D-5 show a similar tabulation for the average full year. Since the values in Tables A-1 through D-1 represent significant wave height and period, these energy values are those obtained if the

wave system is uniform and consists only of waves of significant height and period. Wave trains in nature are, however, exceedingly irregular, and have less energy than that determined by the significant wave concept. The relationship between the actual energy contained in any given wave train and that computed from the significant wave has been examined somewhat by personnel at Scripps Institution of Oceanography (8) and more recently by Barber (9) and Darbyshire (10), and has been found to be very nearly a constant ratio (on the order of 0.58). The energies given, therefore, may be considered to be the true value of the energy multiplied by some nearly constant value, and hence can be used to determine quite accurately ratios of energies from different directions. These latter represent very closely the ratios of the drift-producing forces. Summations of these energies for each direction and period grouping are shown in Figures A-4 through D-4.

All the wave data given in the tables refer to deep water conditions -that is, depths greater than one-half the wave length. As such, interpolation between stations to obtain values for other points along the
shore is quite valid, and it is felt that adequate deep water hindcast
values may be thus obtained for all points on the shores of Lake Erie
in the United States.

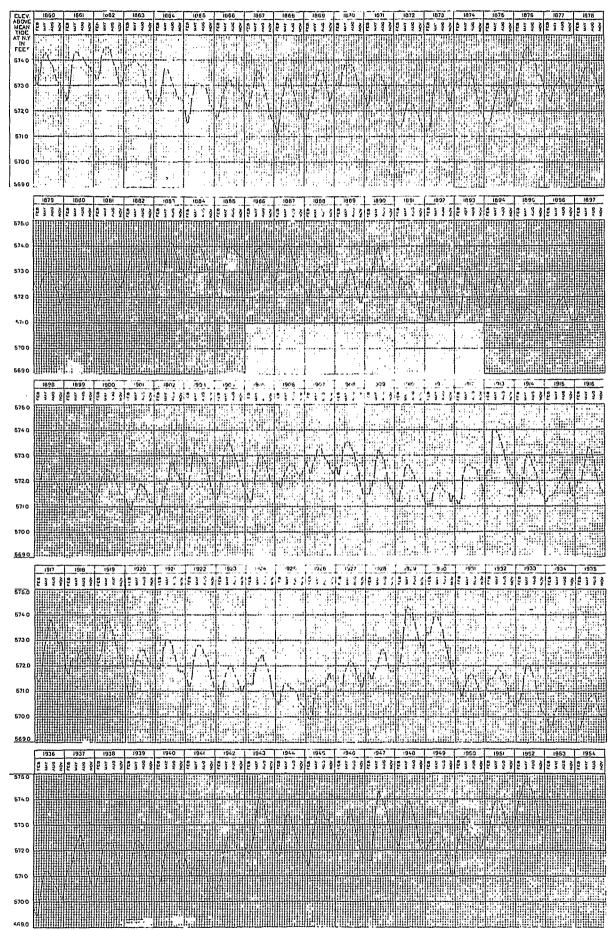
Although the deep water data are useful for many types of design work, particularly for preliminary considerations, it is usually the inshore, shallow water data which are of most interest. These data may be readily obtained from the deep water data through the use of refraction diagrams. A partial example for Ludington Harbor on Lake Michigan has been worked out and presented in the publication dealing with wave statistics on that lake (6), to which the reader may refer if unacquainted with the techniques involved.

LAKE LEVELS*

The levels of the Great Lakes fluctuate from year to year and from month to month during each year, depending upon the volume of water in the lakes. Continuous records of lake levels have been kept by the Corps of Engineers since 1860. A summary of these records for Lake Erie is shown in Figure 3, which is a hydrograph of the monthly average levels from 1860 to date. The monthly average was chosen to eliminate the effects of short period barometric or wind induced changes in stage. For Lake Erie, the average level during the period of record (1860-1952) was 572.31 feet (above mean tide at New York, 1935 Datum), the highest one-month average of 574.60 occurring in April 1952 and the lowest of 569.43 occurring in February 1936. The difference between the highest and lowest monthly average levels is thus 5.17 feet, although the seasonal variation usually ranges

8

*Much of the following data on lake levels is taken almost verbatim from an unpublished report by the Great Lakes Division, Corps of Engineers, entitled "Preliminary Examination Report on Property Damage on the Great Lakes" issued in June 1952(11).



MONTHLY MEAN WATER LEVELS OF LAKE ERIE DATA COMPILED BY U.S. LAKE SURVEY, CORPS OF ENGINEERS FIG. 3

between one and two feet (having an average range of 1.6 feet). The greatest range in level in a single season between the high and low month was 2.8 feet, and the lowest was 0.5 feet. The usual pattern of seasonal variation shows high levels in the summer and low levels in late winter (Figure 4). The highest monthly average level is usually reached in June and the lowest in February, though occasionally seasonal fluctuations have departed greatly from this pattern.

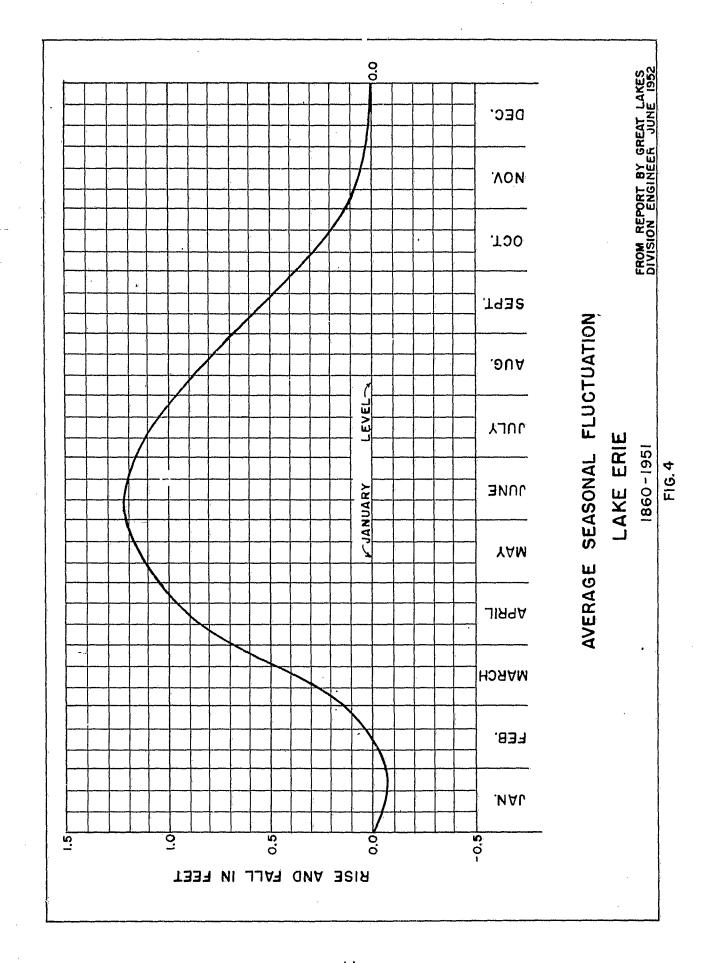
Figure 5 shows the percentage of time that the seasonal high average monthly level reached various elevations on Lake Erie for single, two, three, four, and five consecutive years. For example, it shows that the high monthly average each year reached elevation 571 feet or higher 98 percent of the time, reached elevation 572 feet or higher 89 percent of the time, reached elevation 574 feet or higher 14 percent of the time, and so on. It also shows that while the high monthly average level reached 572 feet or higher 89 percent of the time in single years, it reached this elevation only 82 percent of the time in two consecutive years, only 75 percent of the time in three consecutive years, only 70 percent of the time in four consecutive years, and only 63 percent of the time in five consecutive years.

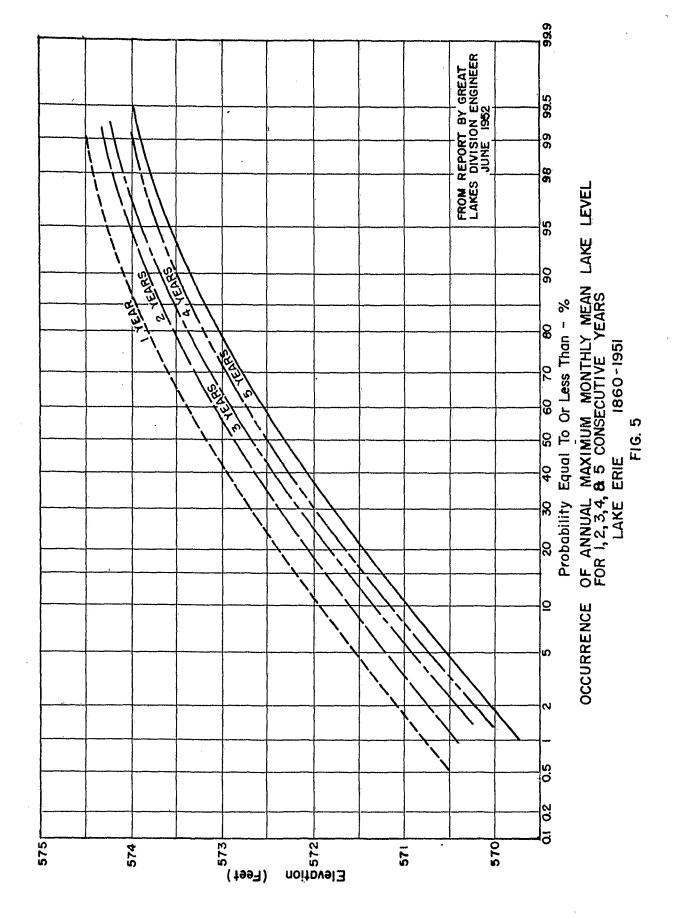
Superimposed on the long range and seasonal fluctuations resulting from the actual quantities of water present in the lake, are daily and even hourly fluctuations resulting from an unbalance or tilting of the lake surface. These are induced primarily by winds, though some have attempted to ascribe them to differential barometric pressures. Figure 6 is derived from data given in a report by the Great Lakes Division Engineer (11) and shows the frequency of occurrence of short period fluctuations at various gage sites on Lake Erie during the period of record. Short-period rises at intermediate points between gage sites depend upon local conditions, but reference to the figures for points in the vicinity will provide an indication of the rises to be expected.

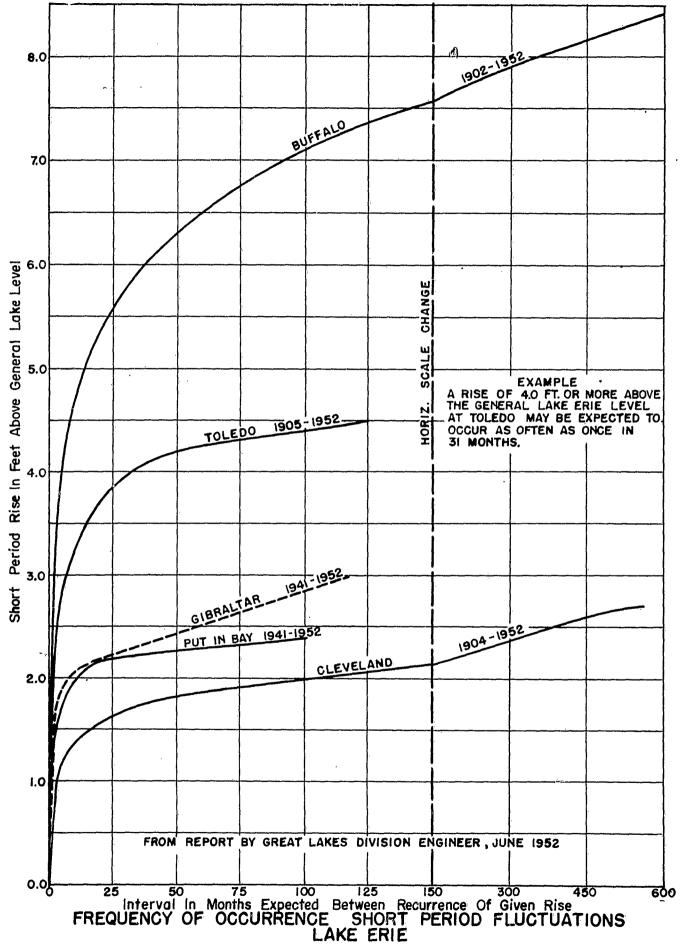
It has been found (12,13) that, at least for shallow water areas, the rise in lewel due to wind stress may be predicted quite accurately by the formula

$$S = 1.165 \times 10^{-3} \frac{v^2 \text{ F}}{D}$$
 N cos α

where S is the total set-up (difference in water surface elevations at the windward and leeward sides of the lake) in feet, F is the fetch length in statute miles, V is the average wind velocity over the fetch in miles per hour, D is the average depth in feet of that portion of the lake that is more or less contiguous to the fetch, α is the angle between the wind and the fetch, and N is a shape coefficient dependent on the planform and nearshore hydrography of the particular area. Though methods of computing N are available, unless the area is a very marked convergent bay, it is usually sufficient to assume values of N = 1. The actual rise in water surface elevation above still water level will be slightly greater than S/2 depending on the nearshore hydrography; an average value of 0.57 has been in general use, and is quite adequate. Although this formula has been checked quite adequately for shallow areas (experimental tanks, the Zuider-Zee, and Lake Okeechobee) extension to deeper waters, as Lake Erie, may be unwarranted, and it should be used with some caution.







REFERENCES

- 1. Sverdrup, H. U. and W. H. Munk, Wind Sea and Swell: Theory of Reilations for Forecasting, H. O. Pub. 601, 1947.
- 2. Arthur, R. S., Revised Wave Forecasting Graphs and Procedures, Scripps Inst. of Oceanog. Wave Report 73, 1947 (unpub).
- 3. Bretschneider, C. L., Revised Wave Forecasting Relationships, Proceedings of the 2nd Conf. on Coastal Engineering, 1951.
- 4. Hydrographic Office, Techniques for Forecasting Wind Waves and Swell, H. O. Pub. 604, 1951.
- 5. Hydrometeorological Section, U. S. Weather Bureau, Analysis of Winds over Lake Okeechobee During Tropical Storm of August 26-27, 1949, Hydromet. Report 26, 1951.
- 6. Saville, T., Jr., Wave and Lake Level Statistics for Lake Michigan, Beach Erosion Board Tech. Memo. 36, 1953.
- 7. Milwaukee District, Corps of Engineers, Lake Michigan Wave Measurements at Milwaukee, Wisconsin, Misc. Report 20/203-1, 1933 (unpub.).
- 8. Scripps Institution of Oceanography, A Statistical Study of Wave Conditions at Five Open Sea Localities Along the California Coast, Wave Report 68, 1947 (unpub.).
- 9. Barber, N. F., Ocean Waves and Swell, London Institution of Civil Engineers, Maritime and Waterways Division, 1950.
- 10. Darbyshire, J., The Generation of Waves by Wind, Proceedings of the Royal Society, Series A, Vol. 215, No. 1122, 1952.
- 11. Great Lakes Division, Corps of Engineers, Preliminary Examination Report on Property Damage on the Great Lakes Resulting from Changes in Lake Level, June 1952 (unpub.).
- 12. Keulegan, G. H., Wind Tides in Small Closed Channels, Jour. Res., Nat'l. Bur. Stds., RP 2207, v. 46, n.5, 1951.
- 13. Saville, T., Jr., Wind Set-up and Waves in Shallow Water, Beach Erosion Board Tech. Memo. 27, 1952.

WAVE AND LAKE LEVEL STATISTICS

FOR

LAKE ERIE

APPENDIX A

WAVE STATISTICS

FOR

STATION A

MONROE, MICHIGAN

TABLE A-I

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION A, MONROE, MICHIGAN Duration given in hours. Height and period aroundness include lower value but not the upper.

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	NE	24	6	6	36																<u> </u>	24	4	6	36
	ENE	_6	./2	6	24	L											-						/2	6	24
. .	E		6		6	. 6			.6			_			T							4	6		12
.5-1	ESE	12			12	6			6													18			18
•	SE	6		12	18															-		6		12	18
_	Total	48		24	96	12			12												*********	60	24		108
	NE	36			36	12	6	12	30													48	6		66
	ENE	_6			6	_6	_/2	30	48													/2	/2	30	54
1-2	E					24		12	54			6	6									24	18	18	60
	ESE						18	6	24														18	6	24
	SE		. 6		6	6		6	12													6	6	- 6	18
-	Total	42	_6		48	48	54	66	168			_6	6									90	60		222
	NE					6		_	6						_							6			6
. 2-3	Ε							6	_ 6	18		. 6	24									18		12	30
	ESE									6		6	_12									6		6	12
	SE			4		. 12		<u>.</u>	.18	:		6	. 6				_	-				12		12	24
-	Total		-			_!#_		12	30	24		18	42									42		30	7.2
	NE					12			_12													12	1		/2
3-4	ENE							- 5		. /2	-	. 6	18			6	6			_		[12]		12	24
, ,	E					-				4	-	6	6											- 6	6
}	ESE						-			. 6.			. 6.		~ .			, ,				_ 6			6
,	5 <i>E</i>				· ,							~. 6	6		-									6	4
-	Total					12			12	18		18	36			6	- 6					30		24	54
4	NE					- 4						. 6.	6			-27.2								6	- 6
	ENE E											.6	_6												. 6
}	Total				· -									6.			6					-6			6
5-6	E											_/2	12	6			-6					- 6		12	18
~ ~ -		90	30	7.4	/44	90	51	70	220	- 40			~			- 6	6							6	6
.7.0	LAL	/0	50	-49	144	-101-	اجوبنم	. 10	222	.42		54	96	. 6		. 12	1.8				L)	228	84	168	480
		CA						· }						.	- 1	-		ļ	ļ		[l			
· ·		TOT			UR																				1560
		101	عم		LLR	>			i									·			L}	.676	672	672	2010

TABLE A-I
STATISTICAL HINDCAST 'DATA FOR LAKE ERIE STATION A, MONROE, MICHIGAN
Duration given in hours. Height and period groupings include lower value but not the upper.

MARCH Secondi Seconds و ع 3- 1 Seconds 1948 | 1949 | 1950 | Total | 1948 | 1949 | 19 HEIGHT (FEET) ENE 12 .5-1 12 ESE 18 12 10 2 12 36 24 18 42 NE 54 12. 1.8. 12 12. 78 ENE 48 36 48 48 ESE 24 12 30 1-2 SE 12 12 SSE 6 Total 122 66 156 198 NE 90 6 76 36 12 ENE Jø 18 6 24 42 2-3 E 1,7 30 10 Esc 6 SE 12 78 24 126 54 NE 36 36 12 42 ENE 18 E 6 ESE 18 SE 18 4 12 18 42 42 Tala 18 NE 12 13 12 ENE 12 12 ESE 16 Toda NE 18 ENE 6 30 30 30 96 282 48 78 60 186 TOTAL 48 6 252 114 174 540 192 680 570 1692 744 744 744 8282

		,				,							APRIL	· 				,							
	Period	1-	. 2	Second	is	2-	3	Second	is	9	- ×	Secon	ds	. 4	-ي-	Second	is	}		Second	İs	1.	-5	Second	5
HEIGHT (FEET,		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total
	EAK	18			18	_/2			12													30	•		30
	E	_6			6	6			6												·	12			12.
5-1	ESE		_/2		12.	6			6	[· · ·												6	12		18
	SE			6	6				~ .										,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					6	6
_		24	12	6	42	24			14	· ·												48	/2	6	66
	NE							6	6															6	6
	ENE					30		12	42	6			6									36		12	48
1-2	E						12.		12		6		6										18		18
	ESE					6	24	_	30	18		Γ -	18				_		_			24	24		48
_	Total					36	36	18	90	24	6		30									60	42	18	120
-	NE								T			6	6				F							6	6
	ENE						6	6	12			6	6										6	12	18
2-3	F					,						18	10											18	16
	ESE					6			6	6		6	12						[12		6	18
	Tital					6	6	4	14	6		36	12									12	6	#2	60
	ENE									18		6	24	6			6					24		6	30
• •	E									13.7	12	6	18										/2	6	18
3-4	ESE											12	12											12	1
	Tatal									18	12			6			6					24	12	24	
4-5	6											18	18											. 18	10
, 5-6	E					1						6	_6		L				,					6	- 4
6-7	E															6	6							6	_ 6
72	TAL	24	12	6	42	66	42	24	132	18	18	84	150	_6	ļ	6_	12					144	72	120	336
•	 	CA	M	├														_				576	618	600	1094

720 720 720 2160

TABLE A-I

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION A, MONROE, MICHIGAN
Duration given in hours. Height and period groupings include lower value but not the upper.

MAY

										,	MAT							,		i	
	Period	1-	2	Second	is	2	- <i>3</i>	Secon	ds	3.	4	Second	is	4	-5-	Second	is	/-	<i>5</i> -	Şecond	is _.
EIGHT (FEET	,	1948	1949	1950	Total	1948	1949	1950	Total			1950						1948	1949	1950	Tota
•	NE	/2			12													12			1
	ENE		12		_12														12		
5-1	ESE	12		6	18													12	<u> </u>	6	_4
•	عم	12			12													12			
_	Tetel	36	/2	6	54													36	/2	6	5
	ENE	24			24	24			24									10			
	E_		<u> </u>			_24	_6	_6	36									24	6	6	3
-2	ESE						18		18			6	_6				ļ		18	6	2
_	SE		<u> </u>		ļ	_6_	6.	30	12		<u></u>							_6	6	30	,
	SSE	_6			6	18			18									24		ļ	2
	Tete/	30			30	72	30	36	138	ļ	<u> </u>	6	6			ļ		102	7	42	12
	ENE		·			_/2_	6_	_/2	30		<u> </u>	6_	6					12	6	18	T
2- 3	E			ļ				12	_/2			12	12			6	6	1	ļ	30	1
	ESE							_/8				<u> </u>	18				-	6	/2		
_	Total	 		 		12	6	#2	_60		12	18				6	6	10	18	66	
	NE	<u></u>		<u> </u>		ļ		<u> </u>	├	12			12	ļ				12			_/.
3-4	ENE	 -	 	<u> </u>				6	-6		├	ļ		ļ		ļ		 		6	
	E			ļ				6	5			 					 		 	6	6
_	Total	 			 	 	ļ	/2	12	12	 	6	12	 			 	12	 	12	2.
4-5	E_	ļ. ·-	 							·		6	·			_12	12			18	
·	ESE				 	ļ -	 -			6	T	 ;	6	ŀ				6	 	/.	-
7	Total			1 -	1 01	01	7/	0.0	210	1 6	+	- 20	12	├		/2			60	18	-
,	OTAL	66	_ /2	6	.84	84	36	170	210	24	12	30	66		 	18	/5	174	60	144	2/6
		CA	LM								-							570	684	600	185
		1	TA	_ /	LOU	D.C	1								F -				1	744	1,
				· ·		T	T					1			T						

JUNE

	Period	/-	.2 :	Second	Is	2.	- 3	Second	is .	3	- 4	Second	is	1-	4	Second	is
HEIGHT (FEET)		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total
	ENE	6	12	6	24		. 6		6					6	18	6	30
.5-1	E			6	6			12	12							18	18
•	ESE		6	6	12	6			6					6		6	18
	SE			6	6			12	12							18	18
	SS Æ		6	6	12			6	_6						6	_/2	18
	Total	6	24	30	60	6	6	30	42					/2	30	60	_
	NE	/2			_12	24	42		66		_/2		12	36	54		90
	ENE	6			6	36	18		54				·	42	18		60
1-2	E	ļ				6	_12	/2	30	ļ		/2	/2	-6	12	24	42
	ESE.		12.		_12	12		24	36					12	12	24	48
	SF					6	6	30	42					6	6	30	4.2
	Total	18	/2		30	84	78	66	228	Ĺ	/2	/2	24	102	102	78	282
	NE					6			6					6		<u> </u>	6
2-3	ENE		<u> </u>					ļ		6			6	_6			6
~ ,	E									18	6		24	18	_6		24
•	ESE						_6	<u> </u>	6	6	12		18	_6	18	<u> </u>	24
	Total					6	6		12	30	18		48	36	24		60
3-4_	ESE					ļ				. 6			6	6		ļ	6
TO	TAL	24	36	30	90	96.	90	96	282	36	30	12,	78	156	156	138	450
		CA	M			-								569	569	582	1710
	<u> </u>	TO	TAL	HC	UR	s							<u> </u>	720	720	720	2/60

TABLE A-I

STATISTICAL HINDGAST, DATA FOR LAKE ERIE STATION A. MONROE, MICHIGAN Duration given in hours. Height and period groupings include lower value but not the upper.

1	ы	v

	Period	/-	2	Second	is	. 2	- 3	Second	is.	3	-4-	Secono	is	/-	4	Second	s
HEIGHT (FEET)		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total
	NE		6		6		6		6						/2		/2
	E	6	6		12							,		6	۷		/2
5 - /	ESE	6		6	/2	6			6					12		6	18
	SE	/2	12		24	6	_6		12					18	18		36
	SSE	12			12									/2			12
_	Total	36	24	6	66	12	/2	·	24		ļ			48	36	6	90
	NE		6		6	24			24		ļ			24	_6		30
	ENE	6	12		18	6	18		24	<u> </u>			ļ	/2	30		72
	E		6		6	6	6	12	24	6	<u> </u>		6	_/2	/2	12	
1-2	ESE		-6		6	24	18	12	54					24	24	/2	60
	SE	6	6	/2	24	24			24	<u> </u>				30		/2	48
	55 E	6			6	6			6					12			12
_	Total	18	36	./2	66	90	42	24		6			6	1	78	36	228
	NE					6	ļ		6	<u> </u>			ļ	6			6
	ENE	ļ	ļ			6					12	<u></u>	12	6			24
2-3	E	ļ		<u> </u>		<u> </u>	_/2	ļ	/2	6			6	6	12		18
	ESE	 	<u></u>								6	ļ	6		6		6
	Total					12	18	<u> </u>	30	6	18		2.4	1	36		54
3-4	ENE	 	ļ			6	ļ	 	6	ļ		 		6	 		6
	E							 	6		6		6	6	6		6
4-5	Total		 		<u> </u>	6	-		6	 	6	-	- 6	- 6	6		12
. —	1	 			 	 	 		<u> </u>	<u> </u>	6	 	6	 	-6	12	6
-	NE	54	60	18	132	120	72	24	216	/2	30	/2	/2 54	184	162		12
,,	Y Car	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \		1.0	1	120	-/^	- T		<u>/^</u>	1			100	/•~	- 7	/
		CAL	M											550	582	690	1836
	<u></u>	TO	TAL	H	ou	RS_			<u> </u>					744	711	711	2232

AUGUST

			······														,
	Period	1.	- 2	Second	ls	2-	3	Second	ds .	3	- 4.	Second	ds	1.	-4	Second	s
MEIGHT (FEET)		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total
•	NE	36			36	6			6					42			42
. .	ENE	12	6		18	6			6					18	6		24.
5-1	E	18			18	6		18	24					24		18	42
	ESE		6	24	30			24	24						6	48	54
	SE	<u>.</u>		6	6			12	12			<u> </u>				18	18
	SSE	/2			12									_/2			12
	Total	78	12	30	120	18		54	72					96	12,	84	192
	NE	12	18		30	24		6	42	ļ		ļ		36	30	6	72
	ENE		ļ	ļ		/2	24	_18_	54					12	24	18	54
1-2	E		ļ			ļ	_/2	12	24	 				ļ <u>-</u>	12	12	24
• •	ESE			ļ		6	_6	6		<u></u>			ļ	6	6	6	18
	SE			ļ	<u> </u>	6	6	12		<u> </u>		ļ		6	6	12	24
·	Total	/2	18		30	48	60	54	162			ļ		60	78	54	192
	NE		ļ			/2	6		18			ļ	ļ	12	6		18
2.3	E	ļ	<u> </u>	 	<u> </u>		12		12	ļ	ļ			ļ	12		12
	ESE		ļ		ļ				<u> </u>	6	<u> </u>	ļ 	6	6			6
-ر ر	Total		ļ	ļ		12	18		30	6		ļ	6	18	18		36
3-4	NE		<u> </u>			ļ				6		-	6	6	<u> </u>		6
74	TAL	90	30	30	150	78	78	108	264	/2			12	180	108	138	426
				<u></u>	<u> </u>	-		ļ				ļ		ļ		<u> </u>	
		ł	LM			ļ		ļ	ļ			 	ļ			606	
	<u> </u>	TO	TA	tt	IOL	R.S.	ļ	ļ	ļ	ļ		ļ	 	744	711	7.72	2233
	ł	!	l	Ŷ	ľ,	! :	ţ	į.	1	ļ	ļ	J.,		1	f	l	l

TABLE A-1

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION A, MONROE, MICHIGAN Duration given in hours. Height and period groupings include lower value but not the upper. SEPTEMBER

												SEF	I C IVI	ocn -											
	Period	/-	· 2	Second	is	2	- 3	Secon	ds	<u>.</u>	3-4	Second	is	4	-5	Second	ls		5-6	Second	ls	/-	-6 9	Seconds	.
HEIGHT (FEET)		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total					1948	1949	1950	Total	1948	1949	1950	Total
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ENE		10.14				*****	18			12.14				-			,			-			18	18
~	E	18	12	6	36	6			6	18			18									42	12	6	60
	ESE		6	6	12	24			30				1.54.		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		-					24	12	6	42
.5-1	SE		12		12	6	6		12			·										-6	18		24
-	SSE			/2			ب		-/. -											 		 -	-10	12	12
	Total	18	30		72	36	/2	18	66	18			18							ļ		72	42	42	156
	NE	-//	-,,,	6	6	18		10	18	10			10					 				18		6	24
	ENE					40		24										 -				48		24	72
1-2	E					66	18	I	84	12		·	12									78	18		96
1-2	ESE					6	30		36				6					 		-		12	30		42
	SE					- 2	/2	6	24										 			6	12	6	24
	Total			6	-	144	60		234				18							 		162	60	36	258
	NE			-	_	7.7		12	12	-	l		1.5	— —			\vdash					1		12	12
	ENE					18	-	6	24		† 			·					 	1		18		6	24
2-3	E					- 0		6	6	6	<u> </u>	1	6				-		 	1		6		6	12
	ESE				-	6	 		6				6			-					†	.12			12
	Total		j · · · ·			24		24			-		12	-	ļ					1		36		24	60
-	NE	i	 	t		CT		-	TO	-/4	†	6	6			ļ	l	,	 					6	6
3-4	E			1		1	-	ľ	1		1			·		6	6						-	6	6
•	Total				İ		-	1			j	6	Z		 	6	6			1				12	12
	NE			_		_		 	 	-	 	/2	12	 		-	-		1	1		 -		12	12
4-5	E				† -		_				†- ·-·	12	/2	-			r		 		 	-		12	12
, •	Total			f-		 	 			-	 	24	24	İ					 	1	 	-		24	24
-	NE		 	 	 	 	 	 	 	·	1	/2	1/2	 	 	 			\vdash	 	1	 		12	12
5-6				1	<u> </u>			 					 		 -	18	18		1	1				18	18
	Total							-	t			/2	12		-	18	18			1				30	30
6-7	F			!		1	1	.	1		:	6	6			6	6	1	1					12	12
7-8	E.		[[-	 	<u> </u>	ļ		i		-}	!	1	1	·	16	6		1	6	6			12	12
8-9	_	1	1	i	1	1	:		1			1	1	\vdash		: 6	6		:					6	6
	ENE		1		1	1		ļ	ī	\top						. 6	6		•	1	1			.6	4_
9-10		1	!	1	ì	1 .	.!	•	1		•	,				6	16		i	İ				6	6
, , , ,	Total				1		:	:	;	T		1	1		1	12	12	П		T	i			12	12.
7	OTAL	18	30	30	78	200	12	72	340	9 40		48	96	1	1		54	'		6	6	270	102	2/0	582
•		i	1	1	1	1	1	•		1	ī	ì		1	:	:	1		į		1	L	L	L	
		CA	11/	1	Į.	1		:		1			1	Τ	i	I	:		1] _		450	618	510	1578
	[70	TA	2 1	POU	R5		;	1		1	•	1		1	1		Ī]	Ĺ	720	720	720	2160
		-			, –	1	•		•	1	•		1	1			•	1	1	-	1	1			

OCTOBER

										,											
	Period	/-	-2	Second	s	2	-3	Secon	ds	9	-4	Secon	ds	•		Second	is	1	-4	Second	s
HT (FEET)		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Tot
•	NE		12	6	18														/2	6	10
-5	ENE		6		6		6	6	12										/2	6	1
	ESE	•	/2	6	18	6		6	12				<u> </u>					6	/2	/2	3
5-1	SE	/2		12	24	6	i	18	24	•				_				18		30	4
	SSE	6		-	6	T -	i	-	Ì									6			
	Total	18	30	24	72	/2	6	30	48									30	36	.54	12
	NE		30		30	6	10	30	54					1				6	48	30	8
	ENE		6	-	6	24			F									24	18	12	5
	E		6	-	6	6		18	30		6	6	12					6	10	24	
1-2	ESE	6			6	30	12	6	48	6	6		12					42	18	6	6
	SE					36												36	_/2	_12	6
	SSE					/2	Γ-	6	18		Ī			T		T		12		6	1
	Total	6	42	-	48	114	60	84	258	6	12	6	24					126		ι.	
	NE					6		6	12									6		6	1.
23	ESE							6			6		6						6	6	1
~ ,	SE				-	6		/2	18	6			6	1				12		12	2
	Todal		1	1 -		12	1	24			6		12		T		Γ.	18	6	24	
3-4	NE							/2	/2	1										12	1
4.5	ESE					T			1	T	6		6						6		
	TAL		. 72	24	120	138	. 66	150	354	_ /2	24	6	42				-	174	162	180	5.
•		CA	M					<u> </u>		<u> </u>							-	570	501		1/2
			AL	HO	UR.	\$			ļ .									T	1	799	

TABLE A-I STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION A, MONROE, MICHIGAN Duration given in hours. Height and period groupings include lower value but not the upper.

NOVEMBER

· /-2 Seconds 4-5 Seconds Period 2-3 Seconds 7-5 Seconds 3-4 Seconds 1948 1949 1950 Total 1948 1949 1950 Total 1948 1949 1950 Total 1948 1949 1950 Total NE 6 ESE 6 12 18 18 SE 12 12. 12 Total 30 24 42 ENE _6 24 24 <u>. . .</u> ESE 18 42 24 48 1-2 5<u>E</u> 10 18 _/,8 18 SSE12 12 54 Total 36 102 36 108 6 ENE ...6 E 2-3 12 ESE 12 24 24 5*E* 12 12 12 24 Total 30 30 30 60 E _6 6 12 ESE 12. 12 _6 SE 12 Total 30 24 NE 6 6 E 6 6 ESE . 4 Total 5-6 ESE 6 TOTAL 40 150 30 78 24 30 20 78 120 60 84 264 600 660 636 1896 TOTAL

HOURS

DECEMBER

.724

720 720 2/60

	Period		1-2	Second	s	ن	2-3	Second	is .		9- <i>4</i>	Secon	ds	1	1.5	Second	is	5	- 6	Second	8	/-	6	Second	is
MT (FEET)		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Tot
	E	,,	6		- 6		6		_6														12		1.
5-1	ESE	6	6	/2	24						L., ,			l l								6	6	_12	-3
3 -/	SE		6	- 6	12				6	l	l	:											6	12	
_	Total	6	18	18	42		6	6	12			<u> </u>	Ĺ									6	24	24	1
	NE	<u> </u>					6		6					_									6		
	ENE			6	_6	6	6		12	6			. 6									12	_ 6	6	12
, ,	E					18	48	_6	72		12		12									18	60	6	8
1-2	ESE	- 1-					48		48		L												48		4
	SE					-	6		6														6		
	SSE						6		6				Ĺ <u>.</u>										6		
_	Total			6	6	24	120	_6	150	6	12		18									30	/32	12	12
	ENE					6		_ 6	12									•		•		6		6	
2-3	E										12		/2										/2		1
	SE		<u></u>	Ĺ			6		6		6		6										12		1
	Total					6	6	6	18		18		18									6	24	6	3
	ESE		L_					6	_6			12	12			6	6							24	2
3-4	SE										12		12										12		1
_	Tota/		Ĺ					6	6		12	12	24			6	6						/2	24	
	E															6	6			6	٤			12	1
6-7	ESE										1	1	_			6	6							6	1
	Total					•										12	12			6	6			18	1
	ESE					·										6	6							6	
7-8	SE											Ţ.				. 6	6							6	
_	Total															12	12						********	12	1
8-1	E												•							6	6			6	
. 70	ZTAL	6	18	24	48	30	132	24	186	6	42	12	60			30	30			_/2	1/2	42	192	102	_
		CA	LM		-								:									700			-
		,	TAL	44	2.4.1	_	****								· · · · · · · · · · · · · · · · · · ·			******				702		692 744	

TABLE A-2

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION A, MONROE, MICHIGAN FULL YEAR Duration given in hours. Height and period groupings include lower value but not the upper.

	Period /-2 Seconds					Duration given in nours. He				T				119-11	1				value but not the upper.										
	Period					2		Second				Second			¢-5					Second				Second					
HEIGHT (FEET)			1					1950		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total			1950					
	NE	_26_	30	_18.	111	_6	6		12								<u>.</u> .					102	36	18	156				
	ENE	.42	48	_18.	108	18.	_12	30	60		-					se			;			60	60	48	168				
_	E	18	60	18	126	24	. <i>6</i>	30	. 60	18	,		1.8.									90	_66	48	204				
.5-/	ESE	54	60	90	204	66	. 12.	36.	1.14		*.											120	72	126	318				
	SE	54	30	60	144	./8	-12.	48	78				-					l i			-	72	.42		222				
	SSE	36	6	18	60			6	6			ļ. " i								-		36	6	24	.66				
_	Total	330		222	786	132	48	150	330	18	-	ļ	18									180	282	372	1/34				
	NE	90	60	. 6	156	198	96.	. 72	366	_	. /2		12						,			288		78	534				
	ENE	42	,	6.	. 66	198.	132	138	468	12			12						. :		*	252	150	144	546				
1-2	E		.12.		/2	162	186	18	426	. 24	30		84		٠.						-	186	228		522				
	ESE	_12			30	108	198	96	402	48		- 6	60							-		168	222	102	492				
	SE.	6	12	_ /2	30	120	48	108	276	Į,						. ;				ļ		126	60	120	306				
	SSE.	_/2		ļ	12.	36	6	24	66													48	6.	.24	78				
_	Total	162		24	306	822	666	516	2001	84	48		168					ļ		ļ.,		1068	834	576					
	NE.	6			6	78	12	24	114		-	6	6							-		84	,	1 1	126				
	ENE		1	į.		60	18	30	108	12	12	1	42		.							72	30	1 I) · · · 1				
	_ <i>E</i>	:				6	36	30	72	60						6	6					66		l "" 1	228				
2-3	ESE	-			1	24	6	24	54	48	42	1	108			,						72	48	1 1	162				
	SE.	Į.	ļ	-	ļ	18	6	30	54	12	12	24	48	į į				ļ			, ,	30	18	54	· • •				
	SSE	١.	1	ľ	١.	1		/2	12			ļ	·				į	ľ						12	12				
-	Total	6	 -	<u> </u>	6	186	78	150	414	132	120		354			6	6		<u> </u>			324			780				
	NE	ļ	-	1		54	-	_12	66	24	6	1	36	- 1			-					78	6	18	102				
	ENE	1.	ļ			6	l	12	18	30	6	24	60	6		6	12					42	6	42	90				
3-4	E	[–			+	ļ		6	6		42	18	60	Į	6	12	18						48	ŧ ţ	84				
	ESE	ļ	+	-		٠.		18	18	12	24	1	66			6	6					/2	24	1 1	90				
	SE			ļ .		1 6	ŀ		6	6	18	18	42									12	18	18	18				
-	Total	 	├	 	-	66		48	114	72	96	1	1	6	6	24	36	 		-		144	102		414				
	NE	ļ	·	1	ŀ	į				6	12	24	42	-			ŀ	. 6			6	12	12	24	48				
4-5	ENE	ļ. -	⊹ - ⋅		1	-		1	i	6	16	12	24					1		-	1	6.	.6	12	24				
	E	 	4	-	+	ļ	ł		l	ر ا	12	36	48	6		18	24			İ		6	12	54	72				
	ESE		ł .						1	6	6	12	24	١.				١.				1 6	6	12	24				
	Total	ļ	+-		├		├	 	├	18	36	84	138			18	24	- 6		├	- 6	30	36	102	168				
	NE	-	.	}		ļ	ŀ			١.	18	.24	72	ļ		}		ļ	ŀ		1	ر ا	18	24	42				
5.6	ENE	 	+	· -	-		ľ	ŀ	!	6	6	1 .	12	ļ		٠.		1		ł		6		_	12				
3-6	E-					1			į		6	6	12			24		1				1	6	30	36				
	ESE]	+	-				i	İ	1 .	_	i	١.,		ſ	-6	6					,	_	6	6				
-	Total		╁	+		+	1	 	 	1 6	30	30	-	 	 	30	30		-	 	 	6	30						
6-7	E			1				1	1		1	6	6	.	1	18	18			6	6		-	30	30				
-/	ESE	 	·		-			1	ŀ	1		!				6	6			١.				6	6				
	Total	 	+-	+	+	+	-		-	 		6	6	 		24	24		 	6	6			36.	36				
	E.			1	!	1		1	ļ		Í	1	ĺ	1		6	6	1		6	6	1	1	12	12				
7-8	ESE		+ ·	1		1	-		1.	[1	-	ĺ	7	6		1			{		6	6				
	Total	+	1 .	-		1		1	!	[.	1		1			0	6		ļ	1 -	_	1		26	6				
8-9	F	 	+	 -	+	+	+-	+	+	+		 		 	 	18	18	 	 	12		1-	 	24	24				
- , _	EVE	+	+	 	+	┪	 	┼	 	 	 	┼	 	 		 _		├	 	12	12		├─-	/2	/2				
9-10	ENE			1	1	1		1	1		1		1	1	1.	6	16		{		1	1	ļ	6	6				
, ,,	1	, 	† •	1.	1	1 .	1	1	į			1	1			6	12	}					ĺ	12	6				
77	Tetal	100	200	200	1098	1200	70	RLA	201	330	220	000	1010	12	-	132		6	 	21	31	205	21000	12	5154				
, (2076	710	1	276	סדטו	1200		7	2000	تعدر	عود	7	1014	1/2	6	محدر	150			12.5	7		7402	-20	1124				
	-	10	1×11			1		1.	1	1	!	1				1	}	[-	1-	-	120	77220	ממנד	21150				
	1		TAL		DUR	15	j 1	1		1				1	-	I					}				26301				
	j-	1	,,,,,,	//	701	T	į	1	j	[ļ	1	İ	1	i	į	j	1	1	1	1	2/07	0/50	5/60	23.4				
•	1	٠.	١	7	1	1	,;	1	•	1		ı	1		1		1	I	•	.*	1 .	1	.1	ι	t				

TABLE A-3

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION A, MONROE, MICHIGAN

ICE-FREE PERIOD (I APRIL - 30 NOV.)

Duration given in hours. Height and period groupings include lower value but not the upper.

											,						•	_	_	,					.
1	Period			econd			- 3				<u> </u>	Second				Second		5-		Second				Second	
MT (FEET)		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total
	NE	54	18	-6	-78	6	_6		12													160	24	6	90
	ENE	36	36	6	78	18	12	24	54													54	48	30	132
	E	40	24	12	84	18	,	30	48	18			18									84	24	42	150
·S-/	ESE	24	42	54	120	60	6	30	96											_		84	48	.84	2/6
	SE	36	24	42	102	18	12	42	72									[, ,	54	36	84	174
	SSE	30	6	18	54			6	6													30	6	24	60
	Total	228	150	138	5/6	120	36	132	288	18		•	18									366	186	270	822
	NE	24	54	6	84	96	72	42	210		12		12									120	138	48	306
	ENE	36	18		54	180	72	72	324	6			6									222	90	72	384
•	E		12		12	120	84	60	264	18	12	18	48			•						138	108	78	324
1-2	ESE	6	18		24	102	114	66		36	6	6	48									144	138	72	354
	SE	6	6	12	24	102	42	90	234													108	48	102	2.58
	SSE	12			12	36		18	54													48		18	. 66
	Total	34	108	18	210		384			60	30	24	114									780	522	390	1692
_	NE					30	6	18	54			6	6									30	6	24	60
	ENE					36	18	24	78	, /2	12	12	36					<u> </u>				48	30	36	114
2.3	E						30	18	48	30	6	30	66			6	6					30	36	54	120
·.	ESE	,				24	6	24	54	42	36	6	84					<u> </u>	L.,			66	42	30	138
	SE					6		24	30	6		12	18									12		36	48
_	Total					96	60	108	264	90	54	66	210			6	6	<u> </u>	<u> </u>	<u> </u>		186	114	180	400
-	NE							/2	12	18		6	24						<u> </u>	<u> </u>	ļ	10	<u> </u>	18	36
	ENE					6		6	12	18		6	24	6			: 6	<u></u>	l		<u> </u>	30		1.2	42
3.4	E							6	6		24	6	30	<u> </u>	<u> </u>	6	6		ļ				24	1.8.	42
	ESE							<u> </u>	<u> </u>	6	12	_12	30						<u></u> .		ļ	6	/2	/2,	30
	SE			<u> </u>		6	<u> </u>	<u> </u>	6	6	<u> </u>	<u> </u>	6						<u> </u>			/2			12
. 1	Total					12	<u> </u>	24	36	48	36	30	114	6		6	/2	<u> </u>	ļ		ļ	66	36	60	162
'	NE				<u> </u>	<u> </u>	<u> </u>				12	12.	21	<u> </u>				ļ		<u> </u>	ļ		/2	-	
4.5	E					<u> </u>	<u> </u>				_6	36	42	<u> </u>		1/2	12	-					6	48	
	ESE	L		<u> </u>				<u> </u>	<u></u>	6	6	6	18							ļ		6	6	. 6	
L	Total					L	<u> </u>			6	24	54				/2	/2	ļ	<u> </u>	 	ļ	6	24	-	26
	NE				 			<u> </u>	ļ	ļ	ļ	24		ļ	ļ			 -	 _	J	ļ			24	24
5-6	E						1		<u> </u>	<u> </u>	ļ	6	_6_	ļ	<u> </u>	18	18					ļ	<u> </u>	24	24
	ESE	ļ		<u> </u>	ļ 	ŀ <u>.</u>										6	_6_		ļ					6	-6
. =	Total	ļ			ļ	ļ	-	ļ	<u> </u>			30		ļ	ļ	24	24	├	ļ	 				54	54
6-7				<u> </u>	.	<u> </u>	ļ	ļ	ļ	-	ļ	6	6	<u> </u>	-	12	12	-	-	 _	-	├ ─	·	18	10
7-8	#	├		<u> </u>	-	<u> </u>	-	-					ļ. —		-	6	6	 	+	6	6	-	 	12	12
8-1			ļ	ļ	 	├-	 		 	\ \ \ \ \	 	├ .	├		├	6	6	├	 	+	+	 	_	6	
	EME	 			 			ļ	 -	 -'	 		 		 	6	-6_	 	+	 -				6	6
9-10		 	ļ ·				.	· 		· ·			·			6.	E.	ł	 -	├	 	 	 	12	1.00
٤	Tetri	7/6	0.00	1.00	-	100	1 100	110	100	200	100	210		+-	+	1/2	12	 	+	6	6	140.0	90-	1068	225
/id	OTAL	3/2	258	156	126	044	700	6/2	1734	122	19.4	610	216	6		84	90	├	╁──	+ -	\ <u> </u>	700	000	1000	7.55
	-	7	ZM				+	· • · •	· · ·				1	 		-			·	1	 	4452	107	1700	4000
	L	160			7	- حرام		·			+					- 			-	 					1756
	1 .	-	TAL		/ 1/ //																				

TABLE A-4

STATISTICAL ENERGY DATA FOR LAKE ERIE STATION A, MONROE, MICHIGAN ICE-FREE PERIOD (LAPRIL - 30 NOV.)

Energy given in foot-pounds per foot of crest per year x 10⁻⁴. Height and period groupings include lower value but not the upper

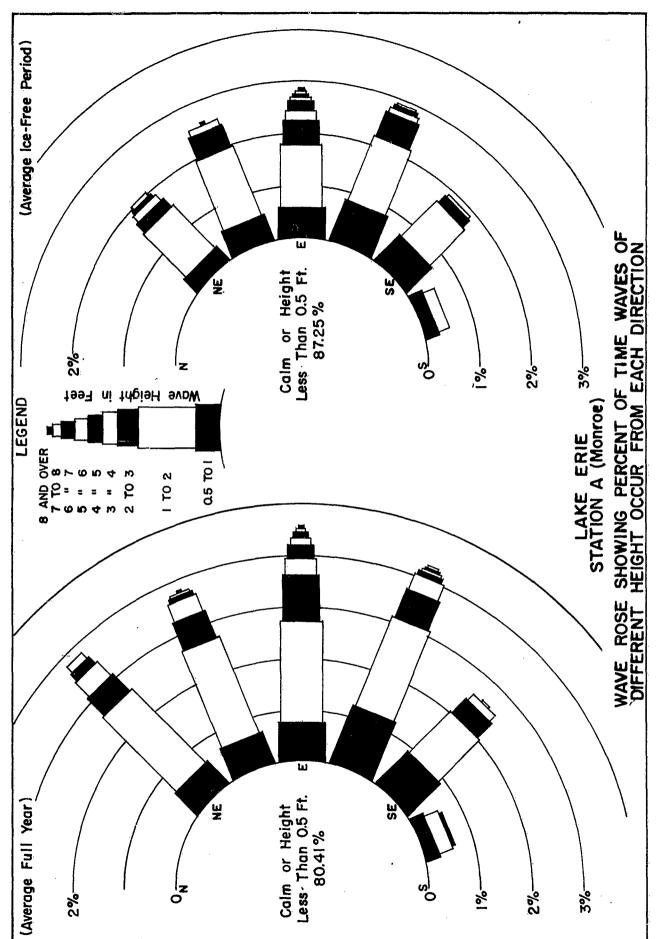
ght et):	Period Dir.	/-2 Seconds	2-3 Seconds	3-4 Seconds	4-5 Seconds	5-6 Seconds	1-6 Second
	NE	155	40				195
	ENE	155	182				337
1	E	166	161	8.5			412
•	ESE	238	324				562
	SE	202	242				444
	SSE	107	20				127
	Total	1023	969	. 85			2077
	NE	623	2802	226		,	3,651
	ENE	400	4,324	1/3			4,837
	E	89	3,523	904			4,516
2	È5E	178	3,763	904			4845
	5E	178	3/23	•			3301
	SSE	89	721				810
	Total	1557	18256	2147			21,960
	NE		1,963	3/2			2,275
	ENE		2,835	1874	ì.		4,709
.3	E		1,745	3,436	404		5,585
	ESE		1,963	4,373			6336
	SE .	And housed on a low	1,091	937			. 2,028
	Total		9,597	10,932	404		20,933
	NE		829	2430			3,259
	ENE		829	2,430	789		4,048
4	E		415	3,038	789		4,242
	ESE			3,038			3,038
	SE	[415	608			1,023
	Total		2,488	11,544	1,578		15,610
	NE			3,977			9,977
-5	E			6,959	3,598		9,557
-	ESE			2,983			2,983
	Total		[13 9/9	2,598		16517
	NE .		****	5,864			5,864
6	E			1,466	5,795	,	7,261
	ESE				1,932		1,932
	Total			7,330	7,727		15,057
- 7	· E			2.016	5,366		7,382
8	E				3,549	4,401	7,950
9_	E	,			4,524		4,524
	ENE				5602		5,602
10	E				5,602		5,602
_	Total				11,204		11,204
70	DTAL	2,580	3/3/0	47,973	36,950	4,401	123214

TABLE A-5

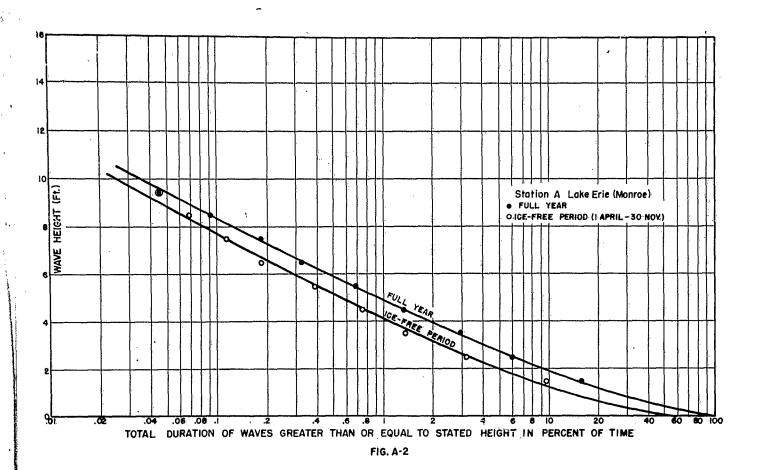
STATISTICAL ENERGY DATA FOR LAKE ERIE STATION A, MONROE, MICHIGAN FULL YEAR

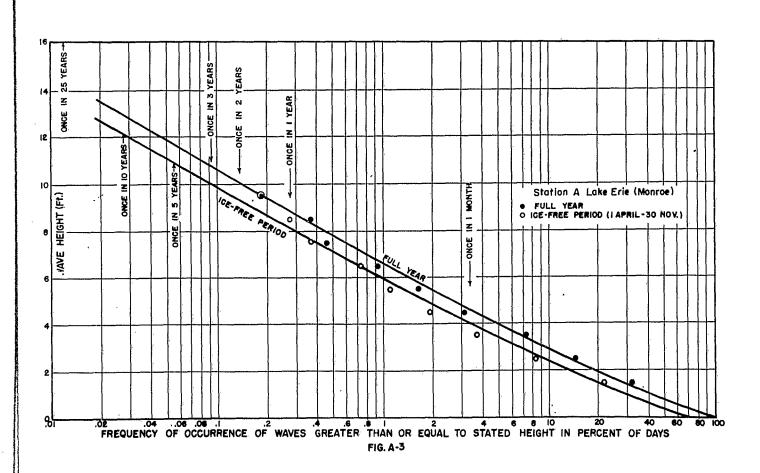
Energy given in foot-pounds per foot of crest per year x 10⁻⁴. Height and period groupings include lower value but not the upper

;	Dir.		2-3 Seconds	34 Seconds	4-5 Seconds	5-6 Seconds	1-6 Second
١	NE	285	40		•		3,25
ļ	ENE	214	202				416
,	E	250	202	8 5			537
	ESE	404	383				787
١	SE	285	262				547
-	SSE	119	20		•		139
	Total	1557	1109	85	'		2751
	NE	1157	4884	226			6267
	ENE	489	6245	. 226			6,960
	E	89	5485	1582			7356
?	ESE	222	5365	1,130			6,717
	SE.	222	3683				3,905
Ì	SSE	89	881				• 970
	Total	2268	26,743	3164			32,175
	NE		4,144	3/2		.	4,450
į	ENE		3,926	2,186			6,112
	E		2617	7,808	404		10,829
	ESE		1,963	5,622			7,585
	SE		1,263	2,499			4,462
	SSE	· · · · · · · · · · · · · · · · · · ·	436				436
	Total		15,049	18,427	404		33,880
	NE		4,562	3,645			820
	ENE		1,244	6,075	(578		<i>8,89</i> 7
1	E		415	6075	2,366		8,854
	ESE		1,244	6,683	789		8,716
	SE	·····	415	4253			4,668
	Total		7880	26,731	4,733		<u> 39,344</u>
	NE			6,959		1592	8,551
5	ENE			3977			3977
	E			7,954	5,196		13,150
	ESE			3977			3.977
	Total			22,867	5.196	1.592	29,655
	NE			10,262		44 - 54 - 37 - 54 - 54 - 54 - 54 - 54 - 54 - 54 - 5	10,262
,	ENE			3932			2,932
6	——	·	 	2,932	7,727		10,659
	ESE	·			1,932		1,932
	Total		 	16.126	2659		<u> 25,785</u>
_	E			2,016	8049	3,315	13380
7	ESE				2,683		2,683
	Total	· · · · · · · · · · · · · · · · · · ·	 	2,016	10732	3315	16,063
	E	removement of a statement of a statement			3549	4,401	7,950
8	ESE_				3,549	*************	3,549
	SE		t y spen Ness		3,549		3549
9	Total		 	 	19,647	4,401	15,048
	1 1		 	[4,524	5,634	10,158
	ENE.	: 			5,602	e as a sur a const	5,602
-10		e e laminima de estado e e e e e e e e e e e e e e e e e e e			5,602	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	5,602
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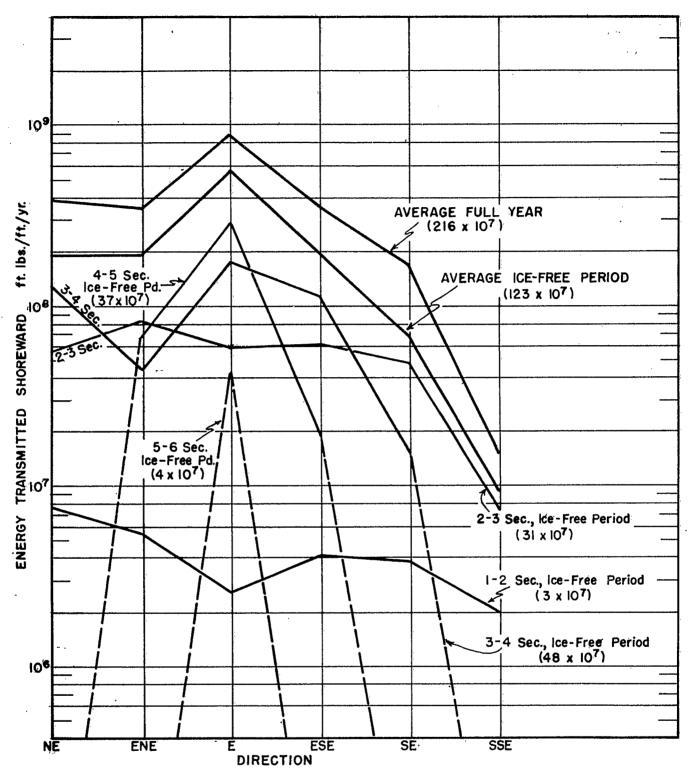


F16. A-1





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AVERAGE AMOUNT OF ENERGY TRANSMITTED SHOREWARD PER FOOT OF CREST LENGTH PER YEAR, IF WAVE SYSTEM IS CONSIDERED AS AN HYPOTHETICAL UNIFORM SYSTEM COMPOSED OF WAVES OF SIGNIFICANT HEIGHT AND PERIOD ONLY.

LAKE ERIE-STATION A (Monroe)

FIG. A-4

WAVE AND LAKE LEVEL STATISTICS

FOR

LAKE ERIE

APPENDIX B

WAVE STATISTICS

FOR

STATION B

CLEVELAND, OHIO

TABLE B-I

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION B, CLEVELAND, OHIO
Duration given in hours. Height and period groupings include lower value but not the upper.

JANUARY

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TABLE B-I

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION B, CLEVELAND, OHIO
Duration given in hours. Height and period groupings include lower value but not the upper.

FEBRUARY

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TABLE 8-I

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION B, CLEVELAND, CHIO Duration given in hours. Height and period groupings include lower value but not the upper.

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TABLE 8-1

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION B, GLEVELAND, OHIO Duration given in hours. Height and period groupings include lower value but not the upper.

APRIL 4-5 Seconds Seconds 2-3 Seconds 3:4 Seconds 1-5 Seconds HEIGHT (FEET 1948 | 1949 | 1950 | Total | 1948 | 1949 | 1950 | Total | 1948 | 1949 | 1950 | Total | 1948 | 1949 | 1950 | Total | 1948 | 1949 | 1950 | Total WM NE Total W. WM NW. 1-2 NNW N. NNE. NE Total W WNW 2-3 .NW NNW .N NNE 12 24 NE Teta W WAY IW 4-2 NNW Ù. NNF NE Total W WAV NW NNH NNE NE Total W WM NW 6.6 NNE Total

.NW Teta

WM

7-8 NW
Total
8-9 W
TOTAL

CALM

TOTAL HOURS

18 149, 90, 66 300 132, 156, 156 444

18 102 342 282 240 869

378 438 480/296

720.720.720 2160

18 36

TABLE B-I

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION B, OLEVELAND, OHIO

Durotion given in hours, Height and period groupings include lower value but not the upper,

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	Period	١,	-2	Secon	ds	2.	- <i>3</i>	Secon	ds .	. 3.	- 4.	Secon	ds	4.	5	Second	ds	/-	5	Second	 {e
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3-4	NAW.	-	1							36		٤	1.2	. 1				36		6	12
•	N				ļ.	1	•			18		_	18		-			18		-	
	NNE NS.								ļ	-	18	12	30 30	ļ	. 1			6	10	12	30
أـــا	Tatal		<u> </u>							78	18		150		- 1		• •	78	18	29	30 15
	MNW	,	1							.6			- 6	. 4			. 6	12.	70	27	/2
4.5	N								i												
פיד	NNE		- 1					i	!		6		6		21		24	ŀ	30		30
_	Tetal.							i 		6	6		12	6	24		30	12	30		75
	WWW				i					6			6	6			6	12			14
5-6	N		•	i				i	,			.6	6,		6		6		6	6	12
	NNE								ł			ر ا		6			. 6	6			_6
_	Take/		<u> </u>							-6	-	- 6	/2	/2	-6		18	18	6	-6	30
6-7	NE			;		:					1			6		į	6	4	اما		4
/	NC Takel		. 1			1					1			1	6	į	6	4	6		6
7-8	b/Ath/													4	 ,	-i	6	6	-		12
9-10	w					!								6				-			-
7	TAL	.18		6	24	126	96	199	366	204	102	152	130	36	36	6	7.0	194	214	288	90
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ļ		70	TAZ		04	75					. 1			- 1	ĺ					799	
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		,							JUNE	<u> </u>							
	Pariod	٫ ا	2	Second		_	- 3	Secon		_		C		Ι.	_		
HEIGHT (FEET)		<u> </u>		1950			1949		Total			Secon 1950				Second	
1	W	6	1947	1330	6	1346	1949	1950	10101	1946	1949	1950	10101	1948	1949	1950	Total
	wan			6	-6							}		6		6	6
	M	•	1	12	12					-			ľ	ŀ		12	12
.5-1	NANK		12	6	18			6	6				,	1	12	12	24
	N.	_6		6	12				_					6	,,-	6	12
	KNE		12		12			12	12		-				12		24
	Total	12	24	30	66			18	18					12	24	48	84
	W				٠,		12	6	18	•				l 1	/2	6	18
	WKW	ł .	6		6		6	18	24					1 1	12		30
	_MW.				6	24		18	48		1			24	6	18	48
1-2	NNW.	6	,-			18	12	30			-		١.	24	12	1 1	
	_N NNE		. 12		12	24	.6		24	-			6	30	/2		42
	NE			ŀ	6						6		6		12	-	12
4	ENE	'	6	,	4		6		6	i i					12	-	
	Total	6	30		36	66	48	72	186		ار		12	78	84	72	12 234
. –	W						6	18	24			12	12	-/-	6	30	36
	WM	}			,	6			6	6		•••	6	12	_		12
_	NW.											6	6	'		6	6
2.3	NAW			,		24			24			6	6	24		6	30
	N.	. :	-	. [6			6	30	6	6	4,2	36	6	6	48
	NNE				• .	12	6		18	1,2	18		30	24	24		48
	NE						1			!	6		6		6		6
	Tolal W					48	12	18	78	48	30	30	108	96	42	48	186
	WWW		۱ ۱			.				6	į	6	6	ار ا		٠,٠	2
	KKW		- 1	٠ إ						1	-	Í		6			6
3-4	N			1	•	1	į	1		18	12		18	18			18
	NNE		- 1			- 1	٠. ا	•		6	12	اء	12		12	ارا	12
	Total	` -				i	İ			30	12	12	54	30	12	, 6	12 54
74	TAL	18	54	30	102	114	60	108	282	84	48	42	174		162	180	558
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		CAL	M	ļ			ļ			į				507	558	500	160Z
		7.0.	TA 4	~ H	04	RS		1		1	;					720	
	L . I	!	I	1	- 1	i	i		1	. ;							

TABLE 8-I
STATISTICAL HINDGAST DATA FOR LAKE ERIE STATION B, CLEVELAND, OHIO
Duration given in hours, Height and period groupings include lower value but not the upper.

									<u></u>		JULY			,							
	Period	7.	. 2	Secono	is	2	- 3	Secon	ds	Э.	. 4.	Secon	is	+	-5	Second	ls	/-	5	Second	s
IGHT (FEET		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total.	1948	1949	1950	Total	1948	1949	1950	Total
الا ساک	NW. NNE Total		2007	1266	/2 /2 /2 /2		, ,		•					,					600	12 6.	/2 /2 /2 /36
1-2	WANTE MANN MANN N. MARE ME		/2	666	4 4 18	6 6 6 40	10 6	12 12 12 12	6 24 18. 12 36 12 12 120	12	6 6 18		12 6 12 18 48					12 66	36 18 66	18 18 12	6 36 24 29 66 30 12
<u>-</u> 2-3	N NN N NN N N N N N N N N N N N N N N			_//8	30	12 12 6	6 66	12 6 6 30	24 18 12 12 6 12 44	6 12 6 36	. 24-12-6	6	12 6 2 1 1 1 2 1 8 9 0			. 1		24. 12. 6 12. 66.	6 30. 12 6 12 62 64	12 12 6	36 18 18 36 18 18 30
3-4 	WAWE N NWE NE Total									6 6 6 18		12	12 6 12 12		6		6	6 18	12	6	12 6 12 18
4-5	WAW NW NE Tole								1	12 6 6 30		6	12 12 6 6	6		6	6	18 6 6 6 36		: 6 6 12	12 6
7	OTAL		24	4.2	66	78	48	78	204	102	78	36	216	6	6	. 6	18	186	156	162	_
	-		LM		 H00	VR.	•		ŧ		:	l	† 						1	582 744	1

								A	บูดบร	ΣT,							
	Period	/	-2	Secono	is	2	- 3	Secon	is	3	.4	Second	is	/	-4	Second	is
HEIGHT (FEET		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total
· <i>s</i> -/	KAW KAW NAW NAW NAW	6	6	18	24	6 18 6 7	U	06468	6 12 24 18 30				•	12 18 12 12	0 000	200000	12 18 30 24 54
	NE	1		2	6	· · ·		12	12	1			'			18	18
	Total	12	18	30	60	42	6	54	102					54	24	84	162
	_W. WWW	18			18	6 18	/2	24 24	30 54			12.	/2	36	/2	36 24	12 72
	NW.					24		12	36					24		/2	36
1-2	NNW		6		6		6	24	30						12	24	36
7-2	.N	6			6	12	36	48	96		12	6	_/8	18	. 18	.54	120
	MAE					12	24	30	66			6	.6	12.	24	.76	72
	NE	'		Į.	ĺ						6		6		6		6
	ENE					6			6				ŀ	6			6
_	Total	24	6		30	78	78	162	3/8		18	24	42	102	102	186	390
	_W wm	ļ				12		6	18	12	6	•	18	12	۵	6	18
2.3	NW	1]	Ì		1	1	6	6	12			12	12	· '	6	18
	NAW	ľ	ľ		1	6	6	6	18			6	1 2	6	6	IZ	24
	1	•	· · ·	ľ	ľ		. 12	_	12	12	6	- 4	24	12	18	6	36
	NNE	r	İ		•••	ľ	2	1	1	6		4	12	12	Z	6	18
	NE	1	1		1	1	-	6	6	1		,	' `	-		6	Ž
	Total	1	1	1	1	24	24	24	72	42	12	18	72	66	36	42	144
***	WW									6		-	6	6			6
3-4	N	l -			1		6		6			-			6	1	- 6
	NNE.] -	Ì		Ì	İ	1	1	Ì	6			6	6	-	'	6
•	Total	1	l				6	1	6	12			12	12	6	. :	10
73	TAL	36	24	30	90	144	114	240	498	54	30	42	126	234	160	3/2	714
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		CA	LM.	١.						ľ. ·			ŀ	510	576	+32	1510
		70	TAL.	HO	UA	5	-	ľ		'				744	744		2232
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																	-

TABLE 8-1

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION B, CLEVELAND, OHIO Duration given in hours. Height and period groupings include lower value but not the upper.

SEPTEMBER

								7-14													
	Period	1-	-,2	Second	is	ن	5 - 2	Secon	dis	3	. 4 .	Secono	is ·	+	- 5'	Second	is	1	- 5-	Second	is.
HT (PERT)	<u> </u>	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Tot
,	W		_6		6		6		6		Ì								12		/
	WAN	12	6	6	24			_12	12							'		12		18	3
•	AH						12		12				•	}		`		1	12	•	١,
•	min						. 6		6			,	, i		. '			İ	6	}	
- /	N						6		. 6						Ċ	,	}-]	6	1	Ì
	NNE	24			24	6		_ 6	12				. `	ĺ				30		6	3
	NE	6		12	18				'	-		_						6		12	
	Talal	42	12	18	72	6	30	18	54		}							48	42	36	
	W		_			12	6		18		. 6		6					12	12		Γ.
	WM		- '			6	12	[18		6		6					6	18		ز ا
•	NW		· • • • • • • • • • • • • • • • • • • •	-		12	24	6	42		. 6		6	, ,				12	30	6	1
1-2	NNW					18	24	6	48				~					18	24	6	1
بد،	N		_	. 6	6	6	24	12	42	ľ	i			. '				6	24		1
	MINE			• •	-	78	-	12	90	12	1	12	2+					90	~7	24	
	NE				Ī	6	6	6	18	30		6	36					36	6	12	1"
	Total	`		6	4	138	96	42	276	42	18	18	78			,		180	114	66	1
_	W					6	-		6		12		12		"		-	6	12		ľ
	NW	-			1	1	ļ		-	ĺ	12	6	18		•		<i>'</i>		12	6	١.
2-3	NNW	· 1	•	ľ	1	1	1			6	24	1	36					6	24		
.	N	1		1	Ì	1		6	6.	"	6	6	12					_	6	/2	
	NNE	•	'		1	6	1	6	12	12	1 -		12	ľ				18	•	6	
	NE	- ^	1			12		18	30	~		24	24					12		42	ž.
	Total	Ì	İ		-	24	1	30	1	18	54		114	1				12	.54	72	10
_	W.		-			6	-	- 2	12		24		24					6	24		
	www	<u> </u>	•	1	ľ	_	1		/~	1	6		6	1			 -	-	.6		١.
	NW	İ	ł		1	1		1		ľ	_	6	6				•			6	
3-4	NAW	-	ì	ľ		1	1	i	1	1	12	6	18				1		12	6	١,
	N	٠ .	1	i -	1		1	}	1	1	(/~	6	6			i i) [' ~	4	1
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	NE	1	İ	1	1	1		}		1	İ				!	6	6			6	
	Total	-	İ	}		6	1	6	12	1	42	24	66	1				6	42	• -	8
	W.	·		-	 	· -		-		 	6	6	12	 	<u> </u>		-	-	6		Ī
	1	ŀ	,		1	1	1			· ·	-		1~	1	6		6		6		Ι΄
	WWW	1			1	1	ŀ	1]		4		6			ì		1	6	İ	•
4-5	NNW	- **	t	1.	1	1		ļ	t }		!	4	2		i		1	1	. •	6	
		ļ.	ľ			-		Į	ļ .		i	18	18		1		1			18	
	NE		1	-	-	{	1	1			!	6	6		Ī		1	ŀ		!	1/
	Total		1	1	ľ	1			•	1	12	e.			,		. ,		مر	6	! 4
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5-6	W		ţ.	1		ł		}				6	6		6	, , ,	•	٠.	6		ė.
	KNE					1	ł	•			ŧ	,		ľ	اردا	18	18	1		24	•
	Total	 	 	 	 	 		 	<u></u>	 		;Æ-			-	18	24	-	6	1	قہ
6-7	NNW	1	1	1			1	i	٠			Ì		1	i	. 6	. 6		i	ŧ	1
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7	Total	42	1/2	24	70	174	1,0	- 00	301	1/1	100	- مو	210	 		12	12	27	2	1200	- (
/	4,712	44	12	24	78	114	126	75	396	100	126	126	312	1	12	36	48	276	276	282	8
•	į:	100	مديا	1	1	1	i	1	i	1	•			1	!	1	t .	١ ـ ـ ـ ـ		i 	j
	-	CA	TAL	۱		4	(ļ			,	:		1	1		i	***	•	733	
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TABLE 8-1

STATISTICAL HINDCAST DATA, FOR LAKE ERIE STATION B, CLEVELAND, OHIO Durotion given in hours, Height and period groupings include lower value but not the upper.

OCTOBER!

			المهمورست	بعنجستنه						,OC	TOB	R	44						· 		
	Period	. /-	2	Second	is .	Ź	خ- ج	'. Secon	ds	.ج.	- #	Secon	da .	*-	ٔ سی	Second	ls ·	1-	. ئىي	Second	ls
HT (FEET		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Tota
. !	NW	6			1.6	,	,		,									.6			6
	N	/2			12			` .							,, , ,			12			./:
5- I	NACE							6	6	,				ľ						6	6
3 - Z	NE			-6	.6)_					. 4	4
	ENE			6	6								,				*			6	ي ا
	Take!	18		12	30			6	6									10		15	3
	Luc.	Ĺ						6	6			,								6	4
•	WKK			<u>. </u>	<u> </u>	_6		./2	18	18		w 249	18		,			24		12	30
	AW	6	<u></u>		6.	. 12		18	30	١,]_]		18		18	3
-2	NAM			<u>.</u>		12.	6	6	24]] .]], .	12	6	6	2
	N_	<u> </u>	<u> </u>	<u> </u>		30	15		18									30	18		1
ţ	NNE		L				6.	12	18	6	. 6	12	24	١.,			Ι.	6	12	24	
1	NE	<u> </u>			[_ :		6	12	18	1	6	6	.12	ļ. 		ļ,			12	18	
÷	Tital	6		<u> </u>	6	60	36	66	162	24	12	18	54	<u> </u>				90	40	81	22
	W.		ļ	ļ		ľ	6	l	6	Ì	6	}	6			,			12		1.
	WANN.		. .	1	١		12		12	18	ĺ	6	24	1			1	18	12	6	3
	AW					6		6	12			6	.6	ŀ	ĺ		ŀ	6		12	1
2-3	Now		Į	1	ľ		6		6	ľ	12	ĺ	12						18		1
	N			.ļ.	1	l	12	6	18	6	6		12	ŀ				6	18	ı	3
	NNE							1		١.	6	18	24	İ				ا ا	6	18	
	NE.		ļ							6	12	-	18		i		[6	12		1
	Tatal	┦	├	 	├	6	36	/2	54	30	#2	30	102	ļ	 	ļ	<u> </u>	:36	78	#2	
	WAW	†		ļ	Į			l	l	18	6	/2	36	l			ļ	18	6	12	3
	NAW		٠		١-	-					6		6		ŀ				6	٠,	
7-4	N_	 				-				6	,	6	12			ŀ		6	١.	6	1.
	NN.E	 		f .				-		6	6	6	18	Ì	1	1		6.	6	6	-/4
	NE.	 -		ļ ·	-	ł			ł	6	١	۱	6	1				.6			1
_	Tetal	 	 	-	├	 -	 	├		36	18	24	78	├		├──		36	14	24	
	W.			·			ŀ		[ŀ	6	,	6	,	1	1	1	,	6	1	
4-5	WAN		 		 			1	ļ.			- 6	6	6	1		6	6		6	1
_	AW			-		1	}		1	ł	1	/2	1 -	6			6	1	,	12	2
r-6 -	Tetal	 	┼	+	 	 	\vdash	 	├─	 	6	14	18	-6	!	┼──	-0	6	6	//	1
6-7	WAN	 	-	 	! -	 	┼──	 	 	 	- 0	 	├	 	-	6	-	ļ .		-	
/_	- WAR	1	 	†	 	 	\vdash	 	!	 	 -	 	 	 	 	6	6	 		6	
7-8	WALK			i	!			1	i		1	1	:			6	6			6	
	THE	1	1	1	1	ľ	İ	1		1	ļ	1	!			1	12		1	12	
ラ	OTAL	21		1/2	36	66	72	RA	222	90	RA	84	250	6	 	18	-	101	154		1
	Year	-47		1-12	36	66	1/2	OF	rec	1	;	1	صحتم	-	1	10	27	100	754	170	13,
		10	20	d			-	1	1			1				1	{	550	588	546	1/25
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	-	1	100			773	1	i	1	1	•	{	1	}	1	1	1	1//		1'''	T-"

TABLE B-I

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION B, CLEVELAND, OHIO Duration given in hours. Height and period groupings include lower value but not the upper.

NOVEMBER

Period	/-	2	Secon	iu	2	2-3	Second	is	خ	3-4	'Secon	ds	1	-5	Second	is	5.	.6	Second	s	/	-6	Second	İs
	·		1950							<u> </u>									1950		1948			
NH	. 6			ş							[6			
NNE.	l '.	ļ.	. 6	6	6	:	:	6				,		ľ	ŀ	ļ					6		6	1
Tetal.	6.	 		12	6		6	6							-	,					12		6	-
WWW	·			ŀ		12	•	12												-		12	6	,
NW		-		ľ	6	12	٠,	6			6	6	•		Ì				ľ		6	′~	6	1
NNW			ľ		12		6	18	<u> </u>			•				i					12		6	
_& .		Ĺ.		ľ		6	6	12			.6	6			}							6	12	/
NNE			l	ľ	/2			12			6	6				! !			ŀ		12		6	,
Total		ļ		 	30	18	18	66			18	18	ļ	<u> </u>	 -	<u> </u>				<u> </u>	30	18	36	6
. W .				-	6	. ,	,	6	_ 6		-	6			ļ						12			
WNW	1			}	18	12		30	. 6	9,	12								Ì	1	18	12 42	12	1
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NNE		}	•	١.					12		12	24	[1		12	•	12	2
Total				ļ	30	18		48	24	42	36	102							<u> </u>		54	60	36	-
W									12		12		١.		ĺ						12		12	
WNW	1								.6	36	1	42					. !				6	36	_	١.
_NW]									12	6	18			į	ľ	1	i	ŀ			/,2	6 6	
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TABLE B-I

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION B, CLEVELAND, OHIO Duration given in hours. Height and period groupings include lower value but not the upper.

DECEMBER

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	Period		. 2	Secon	is			Secon		·		Second			- 5			/-		Second	
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TABLE B-2

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION B, CLEVELAND, OHIO FULL YEAR Durotion given in hours, Height and period groupings include lower value but not the upper,

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2	_N	30.	. 18	18	66	12	24	12	10	-		ļ.	{]	i	i l						: 1	. 1		1		[]	12	. 42	30	
	MAKAK	-52		15	120	36	/2	54	102	- 1		6	6]				, ,			ľ :		. 1	. 1			ļ	7.6.	72	1.08	22
	NE.	L.	. 6	24	.18	6		18	24			6	6				•						-						ļ	.24		.98	1
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TABLE B-3

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION B, CLEVELAND, OHIO ICE-FREE PERIOD (LAPRIL-30 NOV.) Duration alven in hours. Height and period groupings include lower value but not the upper.

1	_		_	-															- /			· · · · · · · · · · · · · · · · · · ·			
	Period	/-		Second				Second			<i>3</i> ~ ≠					Second				Second 1950		1948		Second 1950	Total
ONT (PEETS	W	1948	1949	1950	Total	1948		1950	Total	1948	1949	1950	Total	1948	1949	1950	iotai	1940	1949	1950	10/01	6	12	6	24
	WAN		12	12	42	-6	_ 6	18	24			•				•	. •					24	12	30	66
i	M	18		24	42	6	12	6	24	*							. 1					24	12	30	66
ا م	MW		_/8		24	./8	6	12	36			·			,							1.8	24	_/8	60
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ļ	ME	30	.24	.36	90	24		42	66					,					• :			54	24	. 78	1,54
	NE	_18	-	24	42			18	.18	•									-		· ·	18	•	42	60
	ENE	114	66	126	306	60	36	102	128			•			,							174	102	228	50
-	W	11.7	-	-	200	30	18	42	90		6	18	24				•					30	24	60	
	WAW	18	6		24	66	54	1 1	186	42		6	60	'								126	72	72	
	w	6.	,	6	12	84		90	216		12	6	18		ļ	t :				ļ		90	54	102	24
	NNW	12	6	6	24			156			6	6	12									126	114.	168	
1-2	N	6	24	12	42		132		354	12		30	60		<u>-</u>							126	174	154	
	NNE		6	-	6	168 36		30	300 90	42		30	138						· ·			.78	108		18
	ENE	l	6	\ · · ·	2	6	6		12	7	۱ ′ -		,	ľ ''	1	1						6	12		16
	Total	42	48	24	114	I		576	1620	138	120	138	396	L			_				·	792	600	738	2/3
	_W.					60	1	36	128	24		12	54	٠.								84	30	1	1
	WWW			1	ļ	60			96	78		36				<u> </u>	ŀ					138	60	1'	23
	ASK.				ſ	18	36	24	48	36	1 .	42		ŀ	-	1	-		• •			54 48	114	66	7
2.3	MASV.	6			-6	12	36	24	<i>102</i> 78	90	18					-			t	-		108		t	1
	NNE	_ 3]		.18	24	12	54	78					1]						96	60	1 2 2	1 -
	NE	[·]	1	24		30	66	18	36	54	108]].	. 6	6			ļ		42	40		
	Total	6		 	6	234	160		552	<i>330</i>				ļ	<u> </u>	6	6	ļ	Ļ	 	 	570	492		
	_K				1	6		6	12	18		18		1		.]	,	·				24	-24		
	HAW	ļ			· ·	ľ	ŀ	1		42	1	30		1	•	1	9	ļ·	-	 		42		30	
_	AW.		†	-	1	1	1			66		48		ł		1	1			-		66			1
3.4	_N.						6		6	42		12	66	į.	ſ	1	1	[-			42		12	
	NOF			Ϊ.	[.].	١.	6	6	42		36	102	6].	. 6	ļ		_	<u> </u>	48		7	
	NE.	ļ ,	ļ	Į .	ļ.	١.			١	24		12	66	6			24		-	d	ļ	30		18	
_	Total	 	├	┼	├	- 6	16	12	24	250		7	642	12	18	6	36	├			-	6	228		_
	W			1	1	·	1			24	12	18	48	12	29	12	40		1		†	36			7
	MM	1 1	+-		-		1			6	12		1 '	-/~	1 77	6	6		J			6	1		
4-5	NAM	1.	1	1		1	1	•	ŀ	12		24		6			6					18		24	4 6
	N.		ļ	 -	ļ	ļ	<u> </u>	ļ	ļ		ļ <u>.</u>	12	.12	 		ļ	ļ		├	 	 	٠	ļ <u>-</u>	1/2	
	NNE	-	 				- 1	 		- 6	6	.30		6			18	T			-	12	T		
	NE	1 .	1		}	1		1		54		12							1	1		84			
	W.		\vdash	 	1		t			-	1			6			12					6	6		1
	WAL	4	T	1	l	1			i	6				18			18		-			24	r	7	
5-6		1	ļ	1				1	i i	1	/2				6		6	ŀ				1	18		
	LA.										ĺ	12		6	6	24			1	1		6	4	12	
	Total	, .	1	1		1		1	1	6	18			t.	1				1 -	-		36			
-	W	1		1	į.		T	1	1	T	Ţ			6	T	T	4	1	T	T		6	1_	Τ.	T. (
	WNW	1		Ī	1	1	1				1]		12		18	1				-	12		
6-7	NW	1	-		İ	1	1		ļ		1				6			ii N	-			-{	6	12	
	NEW_	+ -	· ·			-			i		1	1	Į].	1	6	1	1	1	-	1.	1	1	6	12
	NE.	1	1			1	1-		!			1 .	ŀ	6	24		60	1 .	1	1		16	24	30	١ .
_	WW	1-	1.	T-	T	1	1	1.		T	T.	Т		6	1	12	18	1	T.			16	1	12	
7-8	NW.	1	-			1	ŀ		1].				1	6	6	12					1	6	6	12
	Total	4			 	ļ	 	-	<u> </u>	 	٠.	 	-	16	6	18	30	 	-		 _ _	16	6		30
8-9	-W	.]	١.			1		-	į	ŀ	1	1		6	6	1	12	4	'	,	ء - ا	12	6	3" -	14
J -7	Todal		+	+-	1	1	1	1	İ	-	1	1	1	li	1 1		12	1	· -	- 2	12		1 4	6	2
-	W	1	†-	1	1	1	\top	\dagger	1	1 -	i	T	\top	6	- "	+	6	T "		T-	1/2	6	╁		
9-10		1	ľ	1	Ì		İ	1	ì	1	1	1	1	1	1 .		1		Ì	6	6		1	1 6	1
	Teta!	4	<u> </u>	 .		1	 	 	ļ	<u> </u>	4	<u> </u>	4_	6	1	<u> </u>	6		 	6	6	16	4	16	1
10-7/		-	 	-	 	-	-	-	-	 	 	↓		 	 	+-		6	+-		9	6	-	1-	4-
11-12	MAN	1 —	+	+-	 	+	+	i -	 	+	+-	+	+	┼∸	+	+	\vdash	+-	+-	6		+	+-	1 6	
7	NAM	162	114	150	120	919	61	840	230	784	720	734	204	90	124	6000	334	12	+	24		766	KA	2 106	_
		1		,50	7]"~	7-7-0	حجر ا	1	1		1		1	1	'			1			1.56			7
•		C	KM	Ι.	Ī	L			Ĭ	1			1		-			1.7.				388	125	4 3.99	001
																									6/75

TABLE 8-4

STATISTICAL ENERGY DATA FOR LAKE ERIE STATION B, CLEVELAND, OHIO ICE-FREE PERIOD (I APRIL - 30 NOV.) Energy given in foot-pounds per foot of crest per year x 10°4.

Height and pr	riod group	ings include	lower value	but not	the upper.
---------------	------------	--------------	-------------	---------	------------

eight feet)	Peri Dir.	od /-2 Seconds	2-3 Seconds		+-≤ Seconds	5-4 Seconds	/- & Second
	W	36	20		7		.54
	WWW	83	81				164
	NW	83	81				169
1	MAK	18	/2/				163
5./	N	8	0/				169
	MAG	178	222				10
	MC	83	6/_			, .	14
	KNE.						
_	Tite!	606	667				1273
	W		1,201	452	· · · · · · · · · · · · · · · · · · ·	,	1,65
	WAX	178	2,482	1130			3,770
	AL.	89	2,883	337			<u></u>
	MAK.		4,964				5366
-2	$-\alpha$		4,724				
	MAG		4,004	2,599			6,6.03
	NE		1,201	1,502			2,827
-	ENS		160				
-	7364	844	21,619	7,4-5.8			29,92
	-W		3,926	2,&_1.1			4,73
ļ	MACH		3,490	7/83			
	NW		1,745	7,808			<i>9,5.5</i>
2.9	MAKE.		3,708	6,246			9,95
	N	104	2,835	9,0+7			
	NNA		1,963	8,715			10,700
	NE		2379	5,622	404		842
-	Zata/	/01	20,066	47,472	404		68,04
	W		829	6,075	~		6,909
	WAW			12,150	789		
	NH			2,1,3			9,//3
3-4	NNN		4	13,973		~~~~~~	
			#15	663	760		Z.0.9c
	NNE	····	+15	10,328	789.		11,53
	NE		11.50	6,482	3,755		
_	Tete/		16.57	65,005	4.7.33		5,965
	W.			5,965 7954	10,393		
	WOON			7,954	1,299		225
i	NNW			5965	1299		7.261
4.5	N			1,288			1988
	NNK	······································		5745	6495		12,460
,	NE			3,977	3.877		7874
	Total			32.768	29.383		43.15
	w				3,864		3,861
	Mah		1	1378	5.795		10,19.3
	استدا			4,390	1932		6330
5-6	N			1,466	3861		535
	NNR			2932	9,659		12,59
_	Tata			13.194	25/14		38300
	W				2,6.83		2,68
	WKH				8,059		3,099
,	NW				8,049		3,049
6-7	NAW				2,683		2,4.83
	NE		·		5,366		5,366
_	Tele!	·	<u> </u>	ļ	26830		24830
	MAK				10.647		10,697
7-8	Au		ļ		.7,098		7,028
-	Tete/		ļ		17.745		17.743
	W	·		ļ	9,018	5,634	14,687
8-9	KKK.		 	ļ		5,639	5,6.31
_	Tata/	,	 	 	2018	11,268	20319
_	W		 	ļ	5,602		5,60
9-10	NAW		<u> </u>	 	ļ. ——— <u>—</u>	7,011	7,01,1
_	Tata/		 	 	5,602	7.011	12,613
10-11	1		 	 	 	8.529	8.52
	MXX		 	 	 	10,182	10,182
16-12	Acres	<u> </u>	ļ	 	 	20343	20343
	\vdash					57,333	388,65
-7	AT 11	1554	44,011		112,859		. ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,

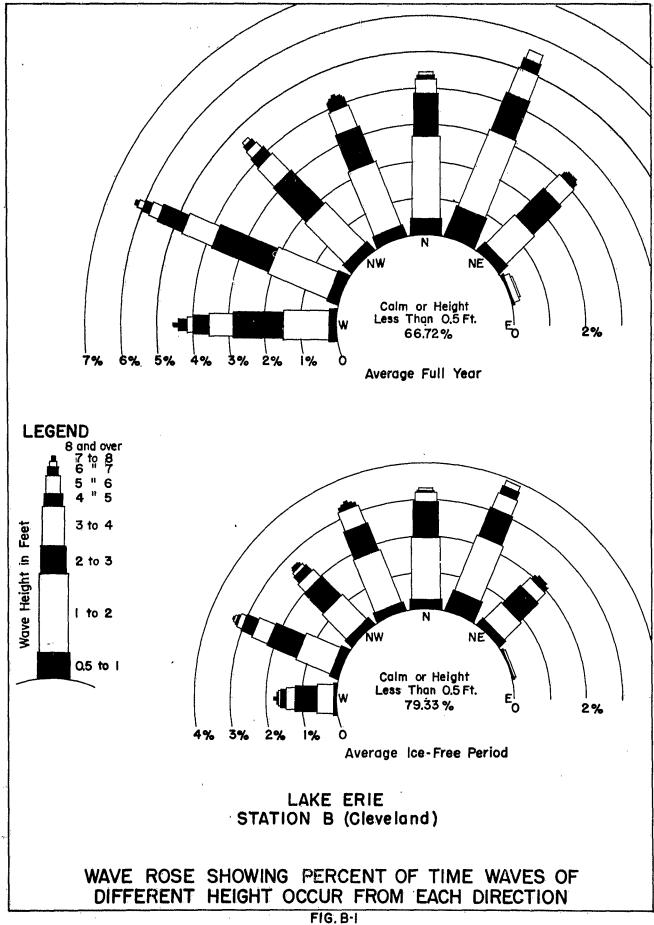
TABLE 8-5

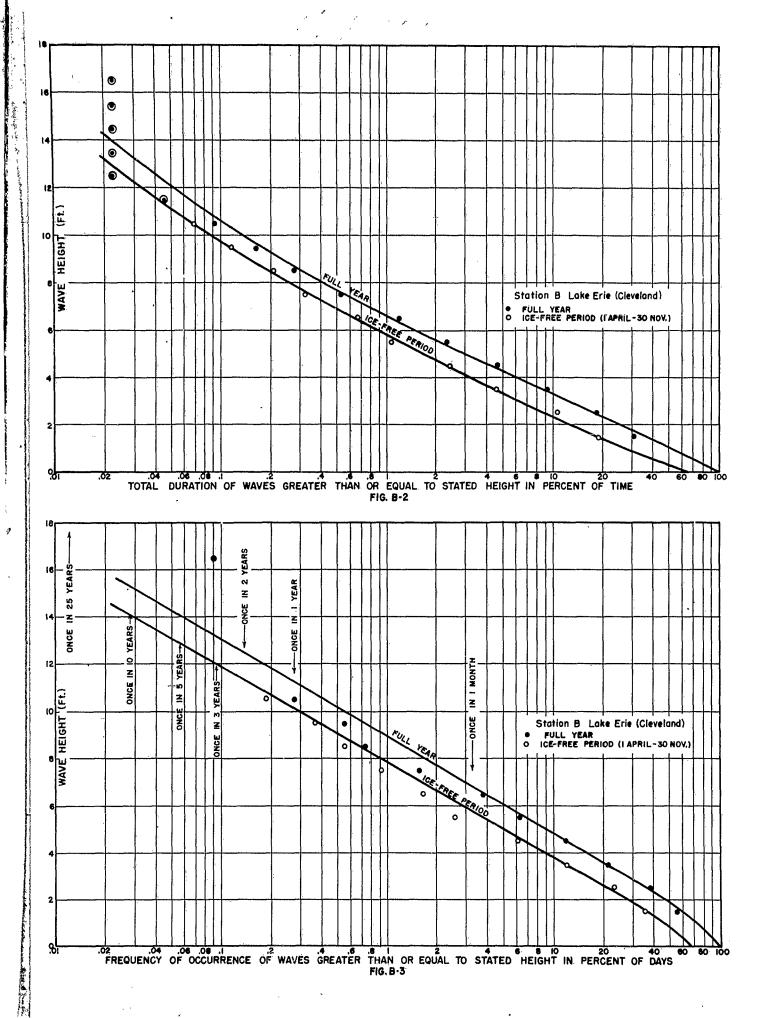
STATISTICAL ENERGY DATA FOR LAKE ERIE STATION B, CLEVELAND, OHIO

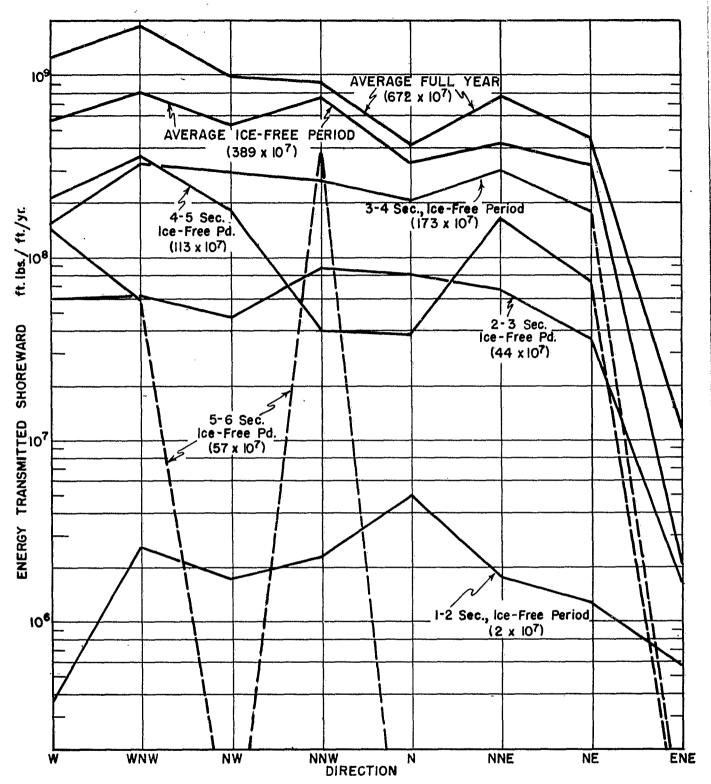
FULL YEAR

Energy given in foot-pounds per foot of crest per year x 10⁻⁴, Height and period groupings include lower value but not the upper

h)	Dir.		2-3 Seconds 6/	3-4 Seconds	≁-5 Seconds	_5-6 Seconds	7- / Seconds	/- # Secon
	MAN	//9	81					. 20
	NH	<u>84</u>	121					26
ļ	and		161	·	<u> </u>			2.3
/	N.	/3/_	161					2.9
	MNE	238	343	28_	ļ			60
1	NE	9.5	81	28				20
ı	ENE	24						
	Tatal	820	1.009	56				188
	W	178	3/23					3,66
	WAH	222	4244					5.06
ľ	NW	89	4884					5.11
2	NAW	178	6.085					632
- [N	445	6.16.5					6,9:
- 1	NNE	4.4	5/24					6,1
	NE	89	2242					2,2
	ENE	11	480					59
- 1	Tele	1289	32347				,	36.7
\neg	W		6.761	9,682			1	
i	Mary		6543	14.055		a		
- 1	NH		4580	11556				
ارِ			3926	9,057				12 9
3	NKK	104	2835	11.868	·			12,91
- 1	NNE	/ <i>U</i> +	3272	10,931	 			19.2
- 1					/ 7 //			
-	NE Tole!	104	3272	7,057	1,2//			/3,5
ᅥ		105	31,189	76.706	1211			108.7
- 1	W		2,073	13,973	789			16,83
ļ	MAN		4/5	22,479	1			23,60
	NW		£15.	17,618				18,0
- *	NAW		4.0	17,010				17,0
~~	~_		829	9,113	2011			9,9.1
ı	NNE		829	17,010	2,366			20,20
	NE			11,543	3,155			
	ENE			6.08				66
	Zatel		4,976	109,354		ļ		121,42
	br	 						21,71
	KKK			18,870	19,486			38,37
	ZW			11,930	1,299			
-5	NOW.			9,942	1,299			11,24
j	- <i>K</i> -	ļ	ļ	2,983_	1,279			4,28
	MME			8,218	6,1.75			15,44
	M.K.			3,977	3,877			. 7,87
	Tetal.	ļ		70,589	41570	ļ		112,159
	W			4,378	2,659_			_14,05
	MAN			7,330	17,386			24,71
	NW			8,7.76	7,727			_16,52
6	NAM			-1,466_			* *	-1,46
	N		ļ	1.466	3,864		·	5,33
.	NNE		ļ 	4,398	15,455	ļ		19,85
	NE		ļ	1,766				1,260
`_	Tetal		<u> </u>	29,320	54,091			83.41
	W.		1	6,047	18,782			21,82
	MAN.	<u> </u>	l	2,016		L	4,557	
	NW	L			16,099_			- 16,09.
-7	Nan				5,366_			5,36
	_HE.		<u> </u>		5,36.6			- 5,36
_	Tetal	1		8063	64,395	<u></u>	4,557	77.01
	MAL	ŧ	1		25,842]		24,81
7-8	1	1			14,1.75			11.19.
_	Tele				39,037			39,03
	W			Į	9,048	5,634		11,68
9-9	MAKE				4,5.24	5,634		10,15
	Take	1			13,572	11,268		24,84
	W				5,602		·	5,60
-10	WWW	4				7,011		7.01
	NW.	1				. 7.011		7,01
	Tatal				5602	14.022		1962
_	W			l		8.529		852
0-//	MAN			ļ		8.529		852
••	Texa	1				17.058		17.03
1-12	NAU	T				10.182		10.18
-	NON					20343		2033
	1	1	1				l	







AVERAGE AMOUNT OF ENERGY TRANSMITTED SHOREWARD PER FOOT OF CREST LENGTH PER YEAR, IF WAVE SYSTEM IS CONSIDERED AS AN HYPOTHETICAL UNIFORM SYSTEM COMPOSED OF WAVES OF SIGNIFICANT HEIGHT AND PERIOD ONLY.

LAKE ERIE - STATION B (Cleveland)

FIG. B-4

WAVE AND LAKE LEVEL STATISTICS

FOR

LAKE ERIE

APPENDIX C

WAVE STATISTICS

FOR

STATION C

ERIE, PENNSYLVANIA

TABLE C-I

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION C, ERIE, PA. Duration given in hours. Height and period groupings include lower value but not the upper: JANUARY

		r										×	MINUA	 	<u> </u>	-11	<u></u>	7	····						•
	Period			Second			-	Secon				Secon		I	•	Second		.5	-6	Second		L	-6	Second	s
HEIGHT (FEET:		1948	1949	1950	Total	1948	1949	1950	Total	1946	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total
	WSH	<u> </u>	6	<u> </u>	6	<u> </u>					·												6		. 6.
	W		6	<u> </u>	6.		L											١.					6		6
.5-/	.W					l	6		6			_			ľ								6		6
	NAKE	<u></u>		6	6			6.	6		ļ	<u>:</u>										<u>.</u> .		/2	12
-	Total	<u></u>	.12	6	18		6	6	12	<u> </u>	<u> </u>		ļ	ļ				<u> </u>			<u> </u>		18	/2	30
• `	WSH	<u> </u>						.6	6		6		6	ŀ				, _					6	6	.12
	W			_6	6	.1.8	24	12	54	.6	18	. 12	36	ŀ			2					24	42.	30	.96
	HAM	6	<u> </u>		. 6	12			12	 .	1,2	6	18	ļ. ₋						********		18	. 12	6.	. 36
	NW					١., .		. 12	12			6	. 6	ļ		ļ			. :					_/8	18
1-2	NUW		ļ			6	./2	. 6	24					Γ.	ŀ	ļ		. :	-			6	.12	6	24
	1/	ļ	ļ	:_		18	36		54		<u> </u>							,		٠.,	-	./8	36		54
	NINE_	-12			12	12	./2	. 6	30		. 6	6	12	·	į.		٠.					24		/2	54
	ME					٠.	. 12	6	18	-				ļ					,	٠.			12	ے ۔	18.
-	Total	18	 	6	24		96	48	210	6	42	30	78			 	<u> </u>	 			ļ		/38	84	
	WSW			ļ . .		. 6	6		/2		-		ł .	l '	6		6	,	·			6	12	الما	. 18
	w			-		_ 6	36	12	54	18	12.		j	·		- ·		. ;				24	48	42	114
	WAW	}	ļ			. 12	· -	1	12	30	1	12	42		ŀ	-				'		42		12	54
2.3	NW		ļ			6	-	٠ ا	6	18		6	24		İ							24		4	30
•	Now	 				6			6	ŀ		-			ŀ .	-						6	,	از	6
	NNE			 			6	٠,	6	,	/2	.6	18		,		-		•			-	18	6	24
	NE_ Total				٠.	36	48	18	6	6	12	60	24		۱,		,			~~ ~/		6	12	12	30
_	1			 		36	70	18	102	72	36	T		 	6		6	-				108			276
	WSW	-	٠.	-		6		•	6	6	12 30	18	18 54	ŀ	30	/2	18					10	18	24	42 90
	WM					🖫	-			/2	مرر	12	24		برر	<u> </u>	20					12	. 60	18	24
3-4	NW					-				/-		18		ľ	-		,					1.4.		12	18
	NNW								1	6	1	1,2	6	-	-	- 1		-		•	-	6		,0	6
	NNE					ľ			1	້	6	1	6								- 1		6		6
	NE				Ì	ŀ	Ì			1	6		6										6	•	6
	Total				·	6	l	6	12	24	t ·	54	t .		36	/2	48		•			30	90	72	192
	WSH	,								1	6		6			-							6		6
	WAW		1			1				18			18	6	18	6	30	. :			-	24	18	6	48
	NW			-	1	į.			1	'	6	1	6							-			6		6
4-5	NNW			Ī. Ī.					1	6		6	12									6		6	12
	NNE				-			ĺ			1	6	6			1								6	6
	NE	L	<u> </u>	<u> </u>	<u> </u>					/2			12		l	1						12			12
	Total								<u> </u>	36	12	12	60	6	18	6	30					42	30	18	90
-	WSW			1 .	1	1]	1		1 -	6	6		6	i	6				l		6	6	12
5-6	W					<u> </u>		ļ	L		6		12	·	.12	12	24				_		18	18	36
3-6	NW	ļ			ļ <u>.</u>	 			ļ. . .,			ļ		: 6	ļ.		_ 6					6			6
	NNE	ļ		1	ł]			6	١.		6									6			6
_	Total		 	1		 	 	ļ		6	6	12	2+	6	18	12	36					12	24	24	60
	NSW		ļ 	ļ		1			1	_	1	Ι.			6		6	1					6	,	6
6-7	W			1	1	}				6		6	12	ŀ	6		6	1.				6	6	6	18
	WWW	1		-			1			[, .		١,	.	ŀ	6			'					6		6
7-8	Total	 	 			 	 	}		6	-	6	12	 	18	-	18	 			-	6	18	6	30
10	1		 	-	 	 	 	 	-	 	-	! 	 	 	-	6	6	 						_ 6	6
8-9	NW		 -	 			-		1		1		1	ŀ	6	1	1 .	1		ŀ			6		6
V	NNW	 - -	1			1						1			12	ľ	12	}					6		6
10-11	Total WNW	 	 	 		 	 	 		 	i -	1	 	 	12	 	12	 		6			12		12
·· "I	TAL	18	12	12	42	100	150	78	32/	150	150	174	474	12	108	7/	156	<u> </u>		6	6	200	110.5	301	6
/ (7 <i>1076</i> -	1.0	12	12	42	100	150	10	236	150	150	1.119	414	12	100	36	طور			0	6	288	420	306	1014
		CAL		'		1					1					į		ľ				151	324	חכו	10.0
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TABLE G-1
STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION C, ERIE, PA.
Duration given in hours Height and period groupings include lower value but not the upper
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TABLE C-I
STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION C, ERIE, PA.
Duration given in hours. Height and period groupings include lower value but not the upper.
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TABLE C-I

STATISTICAL HINDCAST-DATA FOR LAKE ERIE STATION C, ERIE, PA $_{\rm D}$ Duration given in hours. Height and period groupings include lower value but not the upper,

TABLE C-1:

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION C, ERIE, PA.

Duration given in hours. Height and period groupings include tower value but not the upper.

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TABLE C-1

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION C, ERIE, PA.

Duration given in hours. Height and period groupings include lower value but not the upper,

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, ,	1/4/	6	1 18	: 18	. 72	/32	. 16	179	+12	84	36	66	186	222	180	250	660
À.	LA	ļ	1	1	1	[,	•	•	'	1	! :	i I	200	590	44.	ممحر
	TAL	1	UR	:	i		• •.	•	1	,	,			1 1	720	•	t l
, 0	1772	"	70 77.	ŗ	1		t t	•	•		•	1		' - '	,	, 20	

TABLE C-1
STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION C, ERIE, PA.
Duration given in hours. Height and period groupings include lower value but not the upper.
JULY

					;				101.1					 			
	Period	. 1	-2	Second	ls !	2	7-3	Second	is	3.	4	Second	ls	/	-4	Second	s
HEIGHT (FEET)		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total
	MW			6	6.											6	6
	NNW		6		6		6:		6						12	,	12
0.5-1	Total		6	6	12		6		6						12	6	18
	WSW	6			6	6	6		. /2			,		12	6		18
	W					6	6	12	24.		6		6	6	. /2	12	30
	WNW	·				6	•	6	12					6		6	12
•	NW		6	6	12	12		12	24					12	6	18	36
1-2	MAN						18	18	36						78	18	36
	'N		6	6	12		24	. 6	30						30	12	42
	NNE					12	12		24					12	12		24
	NE						6		6						6		6
	Total	6	12	12	30	42	72	54	168	-	6		6	48	90	66	204
	WSW					6			6	6			6	12			./2
	W			ľ	-	24	6	6	36	12	'	6	18	36	6	/2	54
2.3	WWW						6	6	12	6			6	6	6	6	18
2.3	NW			•	,	6		12	18	6	12	6	24	/2	/2	18	42
•	MMW		-			, i	12		12	6	6		12	6	18		24
	NNE	T								18			18	18			18
	NE		١.				6		6	12	6		18	12	12		24
	Total					36	30	24	90	66	24	12	102	102	54	36	192
C	W								!	6	6	6	18	6	6	6	18
	WNW		1	Ī		6			6	6			6	12			12
3-4	NW	•		Ì		1		} 		6		6	12	6		6	12
	NM	<u> </u>	1	٠.	ŀ	1			!	6	:		6	6			6
	NNE			l					i	6	:		6	6			6
	Total		1	ŀ	1	6		١.	6	30	6	12	48	36	6	12	54
	W				F		•				6		6		6		6
4-5		} ···· -	1			1		Ì	l	6)		6	6			6
4-5	NW			ľ		1			!			6	6			6	6
	NE	1	1			1	! !	[<u> </u>	6			6	6			6
	Total	1	Ì		!			1	,	12	6	6	24	1/2	6	6	24
7	OTAL	6	18	18	42	84	108	78	270			30	180		168	126	
,,			10.	1	\ ′-	1	100	/						1	O	1	' '-
	-	CAL	11				!		ł		1	† 		546	576	618	1740
			DL H	DURC	1	1	t I	1	•	•	1	1	!	1	ŧ	744	
	-	100	"' آ	7-7.3	1	1		l	f 1		•	i	:	` ' '	, , , ,	! / /	[]
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TABLE C-I STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION C, ERIE, PA.

Duration given in hours. Height and period groupings include lower value but not the upper.

AUGUST

																	
	Perlod	. /-	2.	Second	ls	2	٠ . 3	Secon	is	. و	1	Second	is	/-	. 4	Second	Is
HEIGHT (FEET)		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total
r	WSK			6	6											6	6
	-W	,		6	- 6				_		123.00	6	6		1	12	12
	WAW	/2			_/2				•	, ,,,,,				12	·	/-	12
	NW	4			ے ۔	• -	· I				•			6			6
.5-1	MAN		4	12	10	. 6	ľ	6	12			,		6	6	18	30
	N	6	6		/2	,-	6	•	6					6	12		18
	NNE			/2	12	12		12	24	,	•	"		12		27	36
,	NE					6.			ے ا					6			6
	Take/	24	/2	36	72	24	6	18	13			6	6	18	18	60	126
	WSW				4	12		.42	59			6	6	12		18	60
	w					24		10	22					29		18	42
	WAY.W.	6	6	L .,	12	36		. 6	92			6	6	72	6	12	60
	AW.		_6		. 6	42	24	18	84					12	ەق	15	90
	MAN	6	6.		12	30	24	30	84	·				. 36	30	30	96
1-2	LK.	6	ے ا		12	6	36	12	84					12	12	12	96
	NO.E.	<u>.</u>	١.	_	-	12		57	66					12.		57	66
,	ME.					18		30	13					18		30	75
	7a62/	IR	24		12	130	84	240	501			/2	12	198	108	252	558
	L.W.	ļ	, 	-	i 1 .	12	6	/2	30			6.	6	./2	6	18	36
	KAW.		ļ			,	6		6				_		6		6
	AM]				6		6	6	6	6	18	6	/2	6	24
2-3	Ancue		ļ.				. 4		. 6	6			5		6		./2
".	_ <i>N</i> _	<u> </u>			,		6		6		6		6		12		12
	MME	 -		ļ				ĺ		./2	1		.12	_/2_			/2
_	Talal			 		/2	30	_/2	54	24	12	12	13	36	152	24	102
	W_						-				Ì	6	-6			-6	6
3-4	<u>~</u>							! }	ĺ	6			4	6			6
J-7	ME					1	1		ŀ	29			27	بموجر			24
	NE									6			6	6			6
	Teto/	ļ	ļ			ļ		 		36		6	4.2	.36		6	52
70	TAL	. 42	-36	-36	11.4	-216	120	270	606	60	/2	36	148	318	168	342	828
<u>ئ</u> ر	 	 -				-		ļ .			1		ŀ		-	ŀ	
	LM		 - ::	ļ. ·										726	1 -	102	' '
70	TAL	111	DUR	S	ŀ	-								794	747	788	2232
	1	١.	ŀ	ļ	į.	Į	ł	I	Į.	١.	i	1	•	I	ı	1	i ľ

TABLE C-I STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION C, ERIE, PA.

Duration given in hours, Height and period groupings include lower value but not the upper:

SEPTEMBER

į	Period	1-	·z	Second	is	Ž	?-3	Secon	ds	3	-4	Second	ds.	. 4	-5	Second	İs		1-5	Second	ls
Hoht (Feet)			1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Tota
	WSW WW NWW N	6	6	12	12 12 6 6 6		6		66		,					*		6	12	6	18 12 6
	NNE NE Todal WSW W	18 18 48	6	12 6 42	30 24 96	6 6 18	12 24 12	6 6	24 30 24 36		18	6	24					24 24 60	18 42 12	12 6 6	36 36 126 57 24
1-2	WWW NWW NWW NNE NE	•				18 12 66 30	12 12 60 4 6 6	24 6	30 84 36 78 42	66		12			*****		- lana -a	18 12 72 36	6	24 .6 .18	30
2:3°	WSW WNW WNW NW NNW N.				Market and Market and Advantage and Advantag	150	156	24	360 18 18 6 6	12	18 12 18 6	18 18 12 12	30			-	•	162	174 12 12 24 12	6 24 6 12 12 24	30
3-4	NNE Total WSW W.					6 12 30			12 18	6	36 18 6	48	96 24 12 6		6		6	6	60 6 24 6 6	6	3/2
4-5	NNW NNE Total W NW NNW						6		6	6	30	12	12 54 18 6		6		6	6		12	١.
5-6	NYE Total NNW NE Total				*		4				24	6	6 48 6			6 6	6		30	6	
_	Www Total OTAL	48		42	96	192	198	102	492	30	108	6 120	6 6 258		12 12 24	6	12 12 30	270	1	1	
	-	TOTA	M A	our.	\$		1	-	:				ļ							450 720	

TABLE C-I
STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION C, ERIE, PA.
Duration given in hours, Height and period groupings include lower value but not the upper.

OCTOBER

											TOBL	: K									
							_			_	_	0			_	C				~~~~	
	Period			Second				Secon		3-		Second				Second				Second	
HEIGHT (FEET)		1948	1949		Total	1948	1949	1950	Total	1948	1949	1950	total	1948	1949	1950	10101	1948	1949		Total
	WSW.			12	12													· j		/2	/2
	W			6	6			6	6				. 1							/2	12
	HAW			6	6															6	6
.5" 1	. A.	12			/2	I		6	6									12		6	18
	NAE			12	12														i	/2	12
	N.E	1	6		6										,	•	l		6		6
	Zata/	_/2		.36	5%		 	/2.	/2					ļ		<u> </u>		/2		10	66
	-W.					6		24					6			[6.		24	30
	14/1/14						6	6	/2		6		6			!	!	1	12	4	
	NW	i i	·			18		12	30		<u>'</u>			1		1		18		12	30
1-2	NNW		-		ŀ	18	18	6	72									18		6	12
	N			1		12	6	6	57		}			{				×2	6	ے	18
	NNE		4	•	6	6	12		12							1		6	18	18	· 1
	NE		1	1		70	_ر ا	13	24		6		. 6				l	90	54	72	216
_	Total		6		6	70	12	72	209		6		6			,		70			
	W		•	1	ŀ		12	 	12		1		6		•) i	٠	18		18
	WWW		1	!	İ				i .	در ا		6	60	ľ			į į	اربر ا	6	12	12
2-3	NW			İ	1	6	-	` ,	/2	10	i	12	60	}		į	ļ	54		6	72
- J	ww		i		1	6	12		24		!					;	:		12		24
	N		1		Į. 1		6	1	2		!	6	6		!	•		•	6	6	12
	NNE		t		1	\	6	1		6	6	, 0,	13		•	i		2	6	6	18
	1	l	1	ļ	!		١,,	. 6	1	59	•	. 4 : 30	96		•	į	į	72	54	36	162
_	Total/	 	1	-	 	18	72	. 6	به کاما		. 6		6	 	·	<u></u>		12	6	6	12
	HAW	ľ	! !			Ì	1	, ,	-	.6		' 6	/2		•	•	•	6		6	12
	NW		1			1	1		:	4		1	6		:		•	4			6
3-4	MAN		1		!		!	: 6	٠ ،	_	1	i			!		!			6	6
J 7	N		1	ĺ	!		1	•	, •	4		ļ	6		1	•	:	6			6
	ME	1			!		٠.	•	•	6	!		6	1	; i	i	i	6			6
	Total			ž Ž	1		1	/2	/2	24	6	6	غو	ľ	i	• :		24	6	18	18
4-5	NW		•	1	!	1.		,			 = .	. /2	12			,			l (/2	12
5-6-	WWW	<u> </u>			•			1							1	: 6	6			6	6
6-73	WAN		1	T	1		1					:	L			6	6			, 6	6
- /	W	<u> </u>			Ī		1							6	!		6	6	,		6
8-9	www	Ţ					,	•						ļ	6	į	6		6		6
•	Tate/			1	1]				<u> </u>				6	6	<u> </u>	/2	6	6	ı	12
70	TAL	/2	/2	36	, 60	100	. 81	102	.291	76	. 21	, 10	150	6	. 6	/2	29	204	126	198	528
,	<u>, , , , , , , , , , , , , , , , , , , </u>				!	ľ	i		•		ŧ	•		-	t]]	544	640	546	1700
	AL		-	1			•	•	•	١.	•	•	•		•	•	1	788		755	
/	OT	-	71.00	RS.			•	•	•		t	•	ı	1	•	1	!	1	'	1,5,5	

TABLE C-I
STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION C, ERIE, PA.
Duration given in hours. Height and period groupings include lower value but not the upper.
NOVEMBER

														140.4	CMD														
	Period			Second				Secon				Secon				Second				Second		6-	- Allen and a second	Second				Second	
HEIGHT (FEET)	1	_	1949	1950	Total	1948	1949	1950		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total		1949	1950	Total
	WAY	- 6			6	6			. 6							,	ľ							. 45-345-0	٠,	12			12
05-1	MM		6		6_							F,.		· .	`,						•	:	~ -				.6	-	6
	MYE				: .	6			6	ŀ		l:		'			ŀ									6		. 1	6
	Toro		- 6		12	12			12					-	-	-					_			·		18	6		24
	WSW					. 6	نم ا	18	24		٠,۵	6	6	١.									-			6		24	30
	W					12	18	30	54		12		/2			, 1					. 1					_	<i>30</i>	30	66
1-2	WWW		•			12	12	12	18 24			-												-	•	12	12	12	18
12	MAN						. سهر.	12	12	-			. '		_	'				i i		. 1		1	١٠.	1	<i>/</i> -	12	12
	AWE		:		1	6		18	24	6	-		6								*	, ,		77		12		18	30
	Total					30	36		156	6		6	24				ľ			-		,				36	48	96	180
	WSW						6	6	12			6	6														6	12	18
•	W		ļ		ļ	. 6	6	18	30	6			24	6	12		18			.						18	30		
	WWW			ļ]] .	. 6	6	12.	-6	12		18										J	J		6	18	_6	. 30
2-3	NW.		ļ	ļ	1	١.	12	ľ	12	ŀ	18	12	30	•										ļ	-		30	12	42
	NAW	-		٠.			18		18	_ ا	24	١.	24	ļ									-				42	ا ا	42
•	NNE	~	 ·	ľ	ł .				1	6	6	6	18													6	6	6	18
	NE. Total	· ·	-	,	ļ ,	_	48	30	84	24	40	36	12	_			,,						-	- •	,	36	/	0	12
	-		-	-	-	6	10	100	04		72	36	132	-6	/2	6	18								_	12	132	66	234 24
	WSW		ŀ		ŀ				ľ	12	24	12		6			6	••	•	·			-			12	24	12	48
	WWW		-		1	ļ		1		12	76	6	24	6		ŀ	3		-	1	. :		-			18	6	6	
3-4	M	•	* ` `		"	, ,			٠,		6	- 7	6	. •	~ •	٠.		•				·				. , , , _	- 6		30
- /	MYH	F			1	l	1			l	6	6	12		ľ							, '		-	-	1	6	6	12
	ME]	Ţ	·] -	Ĺ	l	1	"	12	12	ŀ	[]			-		[]			[. -					12	12
	NE		1	<u>.</u> .		١.		Ι,				6	6															. 6	6
-	Total		<u> </u>	ļ	ļ			<u> </u>		30	48	42	+	12		6	18									42	48		138
	WSW	ļ		1	1	1				6		_	6	ļ		6	6						ļ			6		. 6	12
	W	. ,	ŀ		l	ļ.					_ ا	12	12	12			12			'			ļ			12		.12	24
4-5	WWW			-	l		1		i		6	,	6			,_				ŀ			ļ	-			6.		6
	NH.		ł						i			6	12	İ		12	12					· ·		 -		1		18	18
	NAW. Total		ŀ			ŀ	ŀ		l	6	6	12		12	İ	18	30						· · · -			18	6	12	72
. —	WSW	ļ			i -	ļ	i	 		-	1		72	/ 6	 	70	20	6	 	 	6	 	 	t^{-}	 	6		-70	6
	W		Ī	1	ŀ	1	!	1	!	1	6		6	ľ		12	/2	آ ا		6	6	l	1.		T '	1	6	18	24
5-6	M		l. '		1			i	1	l		ļ			6		6				_		L^-	Ι	1		6	ا	6
	N		Ĭ.						l		6		6			[6	. 1	6
, =	Total	<u> </u>			<u> </u>			1			12		12		6		18	6	<u> </u>	6	12		<u> </u>	1	<u> </u>	6	18	18	42
6-73		ļ. —		<u> </u>	<u> </u>			<u> </u>	<u> </u>	!		Ь—	ļ	ļ	 	12			<u> </u>	12	12	1	├	1	 	ļ	<u> </u>	24	24
7-8	1				├	 	<u> </u>	 	 	├-	<u>!</u>	 	 		6	 	6	├		 			├	+-	 		6	 	6
8-9	TROM			l				1	1		1	İ	1	/	İ	:						:	I	6	6	6		. 6	6
•	Total		l	ŀ	İ		i		Ì	ŀ	į	•	1	6		,	6			١.	· ·]	t	- 6	- 6	6	1	6	6
10-11	WIN	<u> </u>	 		 	 	\vdash	 	 	 	 		 	- <u>Le</u>				12	 	-	12	 	 	-	├	12	\vdash	۰	12
7	MAL	6	6		12	48	84	120	252	68	150	114	330	36	24	18	108	18		18	36	-	 	6	6		264	300	7.44
	Ľ., I		_		-		- '		i	-	1	'	1		- '	, ,						1.	ſ. ·		Γ,	1		·	1 .
	L	Call	77	1							į	ļ			i		l	1	l			↓ .	l	J	J	546	456	414	14/6
	<u> </u>	Tota	LH	purs	ļ.	ŀ	1	1			i	1	i	1			1	ŀ				-	-		ļ			720	
	1	ı	1	1 .	1	1	j .	:	1	ŀ	ŧ	ł	ţ	ŀ	i	٠.	Į.	l	ł	Í	ŀ	1	ŧ	į.	1	l.	l	1	1

TABLE C-I

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION C, ERIE, PA.

Duration given in hours. Height and period groupings include lower value but not the upper.

DECEMBER

r				*******	····			·					OF MIC	-											
1	Period			Second		2-		Second				Secon				Second				Second		/-		Second	
HEIGHT (PEET)		1948	1949	1950	Total	1948	1949	1950	Total	1948	-	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total
	W5W							12	_/2_		6		6									<u> </u>	_6_	_/2	18_
5-2	NW		<u> </u>		6														ļi					-6	_6
- 1	Taker/	ļ		6	6			12	_/2_	ļ	-6		6								-		6	19	24
	WSW							_/2_	12		12	_/2	29										12	21	36
	-W				ļ	1.2		_/8	90	_18_	_ 6.	18										30	_6_	36	72
	WXW		ļ			6		_18	15	-6-	6_	6	13									-6-	6	24	36
1-2	NW.						_G	25	<i>3</i> 6	-		-6	6									_6_	e	30	.42
7-2	XXX	 				_/2	-	24 6	6										· ·			12		24	36 6
	N NN E							6	/2			-	·	-									6	6	12
	NE	 		-				6	6		6		6						-				6	6	/2
	Total					30	19	114	156	24		12	96			-						54	12	156	252
	WSW	 					6	12	18			6	6		6		6						12	15	30
	W					/2	12	ے	30	6	18	10	#2									18	30	24	72
	WYW					6			6		24	6	30									6	29		36
2-3	NW					6			6	6	12	6	24									12	12	6	30
	MAK						12	-6	13		12	10	30										2.1	24	13
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TABLE C-2

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION C. ERIE.PA.

FULL YEAR

Duration given in hours.					

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8-9	HMY.			[[ļ				6	6	/2	6			6			12	12	6	6	18	18
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9-10	W									<u> </u>								6		6	/2				- 0	6		6	12
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TABLE C-3

STATISTICAL HINDCAST DATA FOR LAKE FRIE STATION C. ERIE, PA. JCE-FREE PERIOD (I APRIL - 30 NOV.) Duration given in hours. Height and period groupings include lower value but not the upper.

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	WW.	6	12	6	18	120	102	132	354	' -	12	_	12		.											126	126	138	390
2-2	MWW	6	12		18	120	126	150			18	6	. ₹⊀									•				126	156		138
	W	12	18	6	36	96	120	,	288		.	6	6							•						108	138	84	330
	MA		,		/2	138	96		354 192	24	24	36	24												ŀ	162	96	1	270
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	WSW	1		•		1		i	Ì	12		12	/2	١.,	12	ے	24		1							12	36	12	18.
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4-5	AW.		i_	i .	1	1.	Ì]		1/2		1 10	,		:	18	18	ľ					T	L-	I	12	18	66	76
7-3	MEW	1	ì	i	1		1		1		1	36			i	t	1		ĺ			1					۰.	36	36
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5-6	N.W.W.	 	ļ		1		i	ļ	1	6	. •	6		1	! "	1	1	ŀ								6	12	6	12
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TABLE C-4

STATISTICAL ENERGY DATA FOR LAKE ERIE STATION C, ERIE, PA ICE-FREE PERIOD (I APRIL - 30 NOV.) Energy given in foot-pounds per foot of creat per year x 10⁻⁴. Height and period groupings include lower value but not the upper

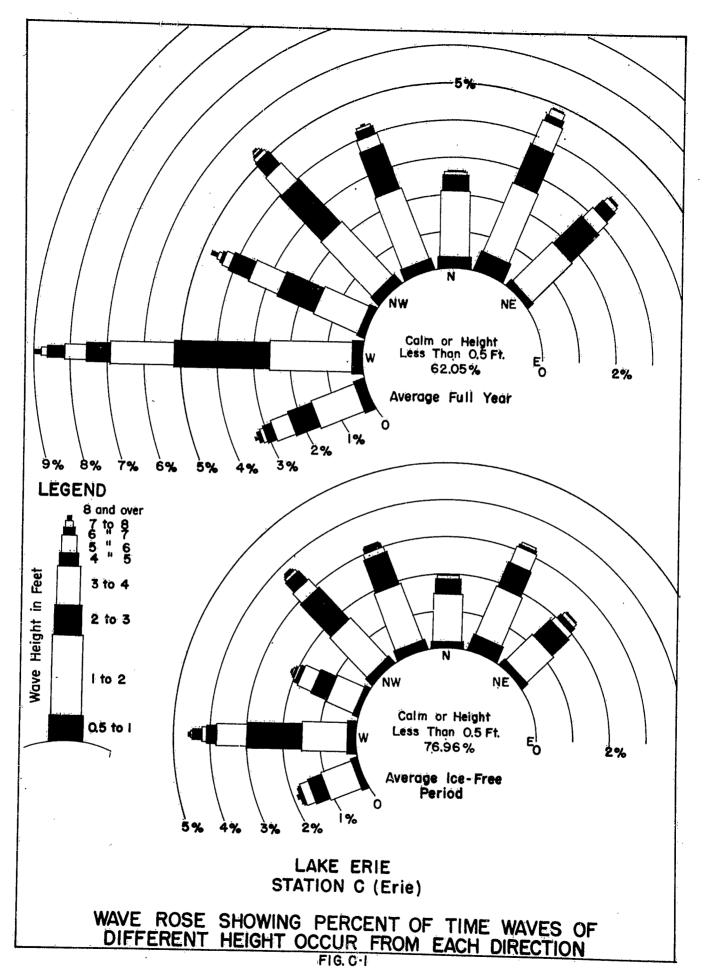
ا ردت	Peri Dir.	1-2 Seconds	2/3 Seconds	3-4 Seconds	4-5 Seconds	5-6 Seconds	6-7 Seconds	/- 7 Second
""	WSW	7/	40					2111
	W	• 7/	40	28		<u> </u>		139
-	WASH.	. 7/	20					9/
-/	NW	95	40					13.5
H	unu.	83 59	61					/44
}	W	155	121					276
Ì	NNE NE	7/	40	v				111
ł	Total	676	423	28				1/27
7	WSW	44	2/62	1243		,	, , , , , , , , , , , , , , , , , , ,	344
İ	W	······································	3,443	1243	146			4.832
Ì	mm	133	2,162	565				2860
1	w	178	4724	226				5/28
2	KHY	<i>133</i> *	5285	452				5,870
Ì	N	267	3843	1/3		`		4,223
- }	MAC		4724	452				5/76
l	NE	89	2562	1,243				3894
-	Total	844	28,905	5,537	146			35,432
ļ	WEW.	······································	2.835	937	404			4,176
	-W		7,852	7,4.96	2,825			18,173
	WM		1,745	3748			·····	5,493
3	NW	······································	2,6/7	12,493				15,110 9,954
_	NAM		3,708 2,617	2,186				4,80
	NNE		3,053	5,622				8.675
	NE		4745	5,934		,		7,679
	Total	***************************************	26 172	44.662	3,229			74,063
	WSK		.415	4.860	1,578			6,85
	W		1.244	18.833	2366			22.44
	WWW		1,244	2113	789			11,140
14	NW	····		2.113				2//3
•	MMM		415	6,075				6,490
	N			2,430				2,430
	NNE			13366		*		13,366
	NE		33.4	4,860	4-22			4,860
-	Total		33/8	68,650	4.733			76 701
	WEW			4,988 6, 9 59	1,299 5,196			/2,155
	W	·····		3977	2,770		ļ	3977
1-5	NH			12,924	3.887			16,821
	NAM			5,965	554		·	5,965
	NHE	***************************************		3,977				3,977
	NE			3,977	3,897			7.874
	Total			39,767	14,289			54,056
-	WSW					2379		2,379
	W			1,466	7,727	2,379	ļ <u></u>	11,572
	WWW			<u> </u>	<u> </u>	ļ		5,795
5-6	MW			1,166	5795			7,26/
بدر	NW		ļ	2,932	·	ļ	ļ	2,932
•	N		·	1,466	1435		·	1,466
	NE			2,932	. /932	 		4 864
	NE Total		· · · · · · · · · · · · · · · · · · ·	10212	30,908	4,758		45928
	W		l	10,262 8,063	13,415	6,630		28,108
	WYW	·		2016	2,683		 	4.699
6-7					2,483		I	2,683
•	NE				2,483			2,68
_	Total			10.079	21,464	6,630		30.173
	W				3,549	ļ	ļ	3,549
7-8	WKW		ļ	<u> </u>	3,549		ļ	3549
· •	NW			·	3,549	ļ 	 	3.549
	Total		 	 	10,647	 	6,707	10,647
	HSW		 	1	9 110	2/21	6,101	6,707
8-9	W		 	 	9,048 4,524	5634 5634	 	14,682
	HKYY. Tolo/			<u> </u>	13,572	11,268	6,707	31,547
RID	14/		l			7,011	1	7,011
	WIN			1	I	17.057	<u> </u>	17,057
_					1		!	
		1520	58,8/8	178985	98.988	46 724	4707	391.742

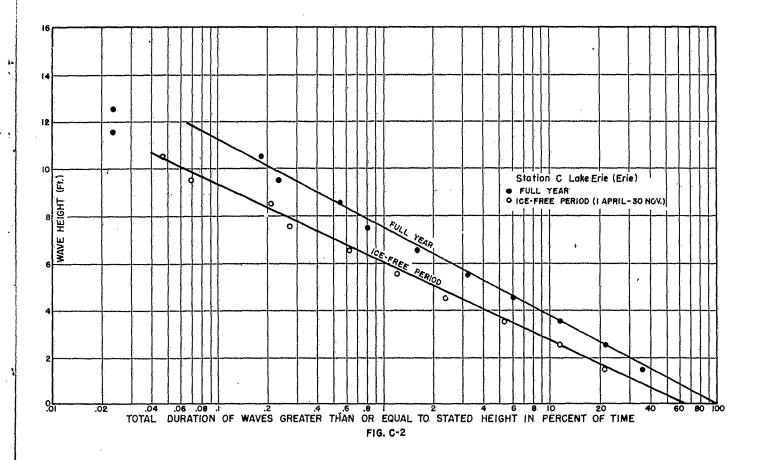
TABLE C-5 STATISTICAL ENERGY DATA FOR LAKE ERIE STATION C, ERIE, PA.

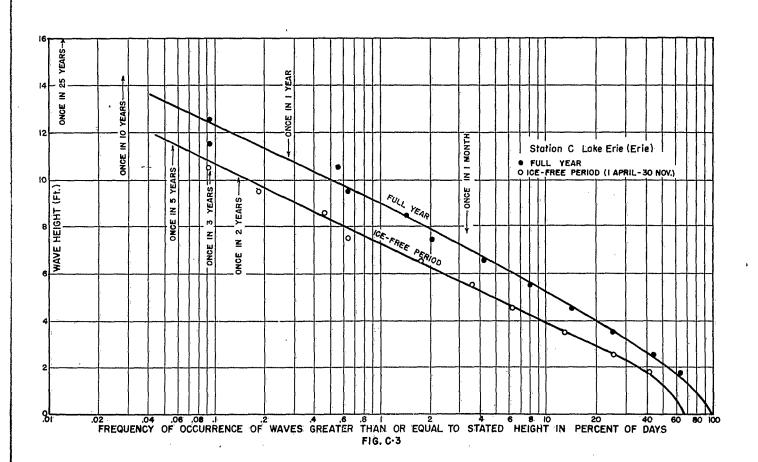
FULL YEAR

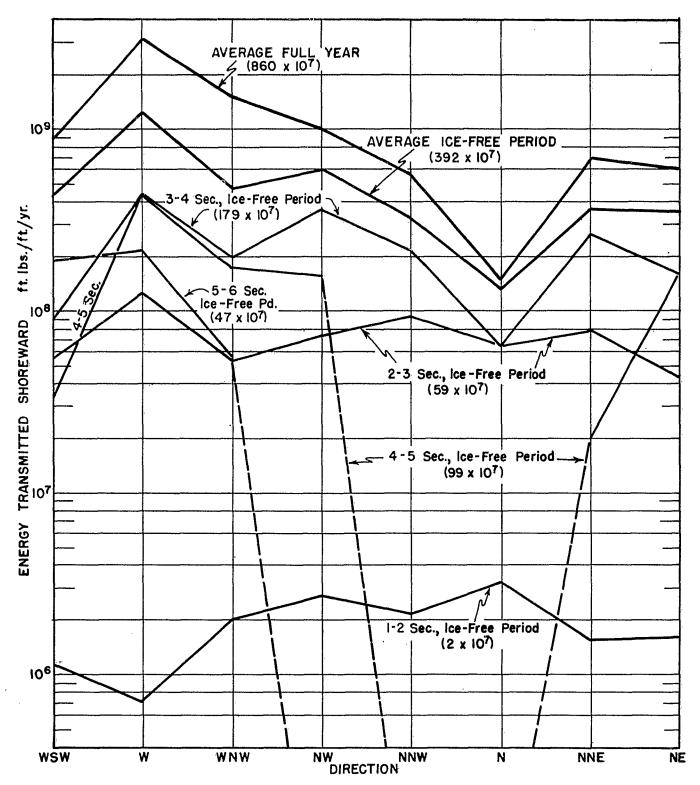
Energy given in foot-pounds per foot of crest per year x 10⁻⁴. Height and period groupings include lower value but not the upper

ht m	Dir. WSH	/-2 \$econds 83	2-3 Seconds	3-4 Seconds 28	4-5 Seconds	5-6 Seconds	6-7 Seconds	/- 7 Second / 92
	W	95	40	28				163
	HHH	95	20					115
Π	NW	119	40					159
1	NNW	107	8/					186
ľ			101					Zoé
ł	N	107						
- 1	NNE _	190	161	······				35/
Į	NE	7/	61					/32
4	Total	867	505	56				1508
- (WSW	44	2883	2147				. 5074
ı	W	44	5525	3,277	. 146	•		4 992
Ī	WWW	267	2963	1,582				48/2
į	NW	222	6326	565				7.113
. 1		178	6646	452				7,27
2	MAN			1/3				5,94
ł	_0/_	3//	5525					
ł	MAE	/33	6245	904				7.28
į	ME	/33	3923	1582				5,634
-	Total	/332	40,036	10,622	146			52 136
1	HSH.		+580	1,562	1614	***************************************		7,756
1	K		12,432	14679	4.439			31,550
- 1	um		3 272	10,619				13.89/
			4/44	1 16,553				20.697
5.	MY		5234	9682	 			14,916
ł	WW	···						
ł	- <i>N</i>		2,835	2,186				5.02
- }	HHE	***************************************	2708	10,619				14,327
1	NE		3053	19,619	<u> </u>			13,672
لہ	Total		39,258	76.519	6,053	<u> </u>		121,830
17	MSW		1,244	8,505	4253	,		14,00
	W		2,903	30,377	12,151			45,43
1	Heter		2,073	19,441	1,215			22,72
				17.618	ZE17-			17,61
*			4.0					
	NAW		415	Z.89£				#3/
ĺ	N			2,430				2,43
	HE			20,098				20,048
ł	NE		415	9.113				9,528
ì	Total		7.050	115,430	17619			140,099
	www			6,959	5,196			12,155
	W			15, 907	16,888			32,795
	MW			14,915				30,502
_					15,589			20,796
5	AW.			16,901	3,897			
	AHY		[:	10,936	<u> </u>			10,930
	WNE			7954	l			<u>2.85</u> 4
	NE			2942	5,196			15,138
	Total			83,512	46766			130, 276
-	WSW			1,466	3864	4753		10,083
				11,728	23 /82	14,258		49,168
	W.							
	WWW.			2,532	15,454			10,306
6	NW.			1,466	11,591			13.057
•	MAY			5,864				5,864
	N		i	1,466	i			1,466
	ME			7,330	7,727		1	15,057
	NE			1,466	11,591			13.057
	Total		** ********	33,718	73,409	19,011		126,138
_	1			2,016		115	 	1000
	WSW				8049			10,065
	W			18/142	26,831	2211		54,917
-7	MANY.			2,016	0,047			10,065
7	M				5366			5,366
	MIKE	· · · · · · · · · · · · · · · · · · ·	l		2,683		ļ	2,683
	ME				5,366		l	5,366
	Total			22,174	56344	2.244	1	88.462
_	W		[14.195	8801		23,896
	mm	····	[19,647		1	10.647
-8			, , , , , , , , , , , , , , , , , , ,	- 				7,098
	NW.				7,098	, 04-1		
-	Today		ļ		31,940	8,801	 	40,741
	HOW			·	 	5,634	6,707	13,341
	W		i		9048	5,634	13.415	28,095
ġ	MIN				2048	5,634		14,682
	NW		L		2048			9,048
	MW				9,048			9.048
	Todal		······		36/12	16.902	20,120	73,214
10	1		 				 	14,021
,5			 		 	14.021		
	MSW					17,057	·	17,057
	W		<u> l</u>			12.057_		17,657
-//	mm		<u> </u>			25,586		25,586
£	Total					59.700		59.700
	W					11,569	1	11,969
7.3			 				7	
-75	11			,				P.









AVERAGE AMOUNT OF ENERGY TRANSMITTED SHOREWARD PER FOOT OF CREST LENGTH PER YEAR, IF WAVE SYSTEM IS CONSIDERED AS AN HYPOTHETICAL UNIFORM SYSTEM COMPOSED OF WAVES OF SIGNIFICANT HEIGHT AND PERIOD ONLY.

LAKE ERIE - STATION C (Erie)

FIG. C-4

WAVE AND LAKE LEVEL STATISTICS

FOR

LAKE ERIE

APPENDIX D

WAVE STATISTICS

FOR

STATION D

BUFFALO, NEW YORK

TABLE D-I
STATISTICAL HINDOAST DATA FOR LAKE ERIE STATION D, BUFFALO, N.Y.
Duration given in hours. Height and period groupings include lower value but not the upper.

		Т				,				γ		********		JAN	IUAR	Υ		·	<u> </u>			÷	******		7 7 6 2	wt			
	Period			Secon				Secon		4-		Secon				Secon		5-	٠.	Secon	d s		6-7	Secon	ds	/_	- 7	Secon	de
TIFEE		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1040	1050	Tatal	1040	1040	Liosa	
- Z	W	 	-6		6		<u> </u>				1						 		-	11000	10,00	10-70	1075	1900	10101	סויפון	1949	1950	4
	SW.	6	l	1	6	18			10	1				-			 				 			 		 	ļ£	4	4
:	WSW	4		6	6	6	24	e l	30	6	1	6	/2	6	1		_			1	i					29	ŀ	l	١
•	-K-		12	Ì	1/2	10	/2	i	1				1	_		l	6			ŀ	ł	·		ļ		10	24	/2	٤l
	Total	2	10	٠,	150	42	16	30		-	10	١.	29		ļ					t	ľ					24	12	00	ı
	SW.				1 2	_	76	1 30	150	/2	.10	-6	36	-6		 	-6				<u> </u>	<u>. </u>				66	66	#2	-1
•	WSW.	1 -			1	/2	١.	1.	12	/2	ı	-	12			1		٠.,								24			7
	1 .		, -		1		6	ľ	6	-			١.,		/2		1/2		•	١.					T -	1 ' '	10		ı
	-W.			,		18	ľ	12	30	66	71	12	10%							·	١.		-		-	84		١	1
-	Zate/					20	٤	12	10	78	24	18	114		12		12						 ,		-	7.	, - ,	29	
	54.				١.			1		6			6							-			· ·			100	- 12	12	4
١.	W5W.	1.	_					1. 1			24	6	30		12	!	12						•		 -	4	:	ļ.	١
	W						6	6	12	12	24	•	36	. 1	7,0		6	.									36	6	ŀ
_	Tate!			<u>. </u>	ŀ		2	2	/-	20	-7	_	72			6	. !	.]								12	30	/2	1
	SW.								-/-	-261	- 7-6					-	18									18	66	10	L
5	WSW	ŀ						1.		18		6	24					i								18	١	.4	I
9	14							1 1		/2	- 1	12	24	4	6		/2	٠ ا	6		G	!				18	12	/2	1
	Tile	1 1			ĺ			1 1		24	24	24	72	- 1	18	1	10	l	ı	i				•		24	12	24	
		-			-					54	24	-22	130	6	بخوجر		30		6	٠	اے					. 60	ſ	42	
٤	WSW	i i				- 1		1 1	Ī	. 1	- 1		- 1	- 1	121		12			6	6					- 20	/2		+
•	. w	1				- 1		1 [ł	6	- 1	1	6	4	اء د	10	15		- 1	-	_ [1					6	ı
	Tetal									_ < !	- 1	I	4	2		10	60		ļ	٠	ار					/2	24	10	l
7	1421K]										1		٤,	/2	4	24				-					75	36	24	1
	W	. 1				- 1		1. 1	- 1	- 1	- 1	- 1	- 1	1				- 1		- 1	ŀ					6	/2	6	ŀ
	70/01			1		ľ		; 1	Į,	. 1	- 1	1	- 1	12	/2	/2	36	i	- 1	ł	- 1					12	/2	12	L
8 <u>1</u>	W							1						-/-	-25,	1	60									10	24	18	1
	WSW							ш						-61			-6									6			Γ
,	w				- 1	- 1		1	- 1	i	1	- [ŀ	6	{	6	12		- }	- 1			L			6		6	Г
- 1	Tela!	- 1	1	٠ ا		i				i	i	İ		- 1	12	- 1	12	_			- 1.	l					/2		ľ
10.			1			+						!		-61	-/2	<u> </u>	25												ı
7-4												!		15	<u>;</u>	1	10									10		_	t
	14.514	- 1	·				- 1	i	- 1	i	1	!	- 1	6			6		-							-			H
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	Tete/			· · · · ·						;		!		/2!	,	2!	10		}	- 1	ŀ					6		6	
	.H5W	i	:	!		• :	7		T					1			-25	6			-, +	┷┼				-(3		-6	L
2	_W	. 1			ľ				- 1		,			1	1	ł		- !	- 1		9				- 1	6	- 1	ا.ر	ŀ
_1	Today			į		i	:	• •		•	1	:	- 1	•	;	į		1	- 1	اء	6				- 1	ار		6	Ļ
<u>ا</u> ت،	W					1	i			-	•						- -	6		اع	12				_	6		-6	L
17	WW	 i	T																	6	6							6	Ĺ
70	TAL	61	18	4	30	79	10	10	110	100					4-0-1									12	12	I		12	L
7		-1	1	-1	-01	12	70	48,	00%	108,1	14	66 ,3	148	18/	20	542	:52	6	6	18	30	ļ		12	12	330	306	200	A
- 1	~~ ·	CAL	امد	- 1	- 1	. !	1		ľ		:		- 1	1		i		- 1			j		ı					7	ľ
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·		TOT	44	1700	JRS	į	i				ŧ					ĺ		[- 1	-		- 1	- 1	- 1	ľ	740	744	7.4.4	5
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	Period	,	1-2	Secon	ds		2.3	Secon	ıds		7.1	Secon		ľ				Т				Г				Т			
T (FEET)		1948	1949	1950	Total	1948	1949	11050	Total	1040	1,040	Secon	1	1		Secon	ds		5-6	Second	is .		6-7	Secon	ds	P /	1-7	Secon	ds
•	SW			1000	1.0.0	6	1343	11330	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Tot
25-1		6		 -		"			6							l	l	1	1		1					6			1
	W	12	6	. 6	24		f	-	'	١-	l	[١.		!			ľ		1	ļ.	٠.	l			6]]		1
	Total	18	4	6	30	6		1	6	•	1	1				١,		1						١٠		12	6	6	Z
1-2	WSH	6			6	_	12	6	18	-	2	1	18		 	-								<u> </u>		24	6	6	3
-	-W	12			12	18	12		1.0	Ž	2	•	12			l		ľ						١.		12 36	10	12	4
_	Total	18			18	18	24			IZ	12	6	30											1				10	_>
	5W.						12	<u> </u>	12		18		18					 -	├	ļ			<u> </u>	<u> </u>	<u> </u>	18		30	11
2.3	WS NZ						24	6	30	6	6	12		6			6	1		•••	' '			ŀ	, .	١.	30		3
- 1	_W	٠.,				6	18	6	30	12	12	'-	24	-			•									12		18	2
_	Total					6	54	12	72	18	36	12	66	_6			4						·		-	18	30	ے_	5
3.4	WSW.		.					6	6	12	6	6	24			6	6								-	30	90	24.	_
· ' h	W.		- 1						1	12	6	42	60	-6		6	12			.						12	6	18	3
	Today							6.	6	24	12	48	84	6		12	18								٠ :	30	٤.	. 18	
- 4	SW	ı								12			12	- 1												12	/2	4	14
454		- 1	- 1							6	12	18	36	ļ	6	12	18	6			4					12	18	30	2
	.H. Todal	•	- 1			ĺ				12	12	24 42	18	- 1	12	6	18	.		- 1	ľ	- 1				12	24	30	2
	HSW									30	24	42	96		18	18	36	-6			6					36	42	60	
5.6	W	ŀ	ı		'		- 1			6	- 6		12	6	ļ		6	- 1		- 1						12	6		1
	Toda	- 1	Į.		İ					12	12	- [18	12	2	6	24	6	6		12	- 1	. 1		J	24	24	6	٤.
	SW.								-	12	10		30	10	-6	-6	30	-6			12					36	30	6	_ >
6-7 1		ŀ	- 1	1	ľ	.	!	-	' I	- 1	•	ļ		6	1	-	.6	.								6			
	W	. 1				İ	1		ľ	- 1	6	ĺ	٠, ١	إر	12	Į	12	أر	6	Í	6	6			6	6	18		z
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· /	vsw.		,								-		-	14	6		30 6		- 6		12	-6			6	24	30		5
7-8	M		- 1		. [1	Į			•		į	- 1	6		- 1	12	ŀ	- 1	- 1		-1	-						
	GG4/									ŀ	1	Í	'	7	12	-	18		- 1	1		ļ	ľ			ا ک	6		_/:
	NSH										-			6	12		6		6		12					6	12		4
70	74.	36	6	6	18	30	78	42	150	96	108	108	3/2	54	54	36		24			_					12	_ {		_
-		المر		ı	ļ			.	į.	- 1	1			-7	-7		7.77	-7	18	ļ	12	4			6	216	264	122	20
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-	· 7	04	12 /	404	RS.	- 1	ļ	1		· [- 1	l	ľ	İ	- 1	f		ŀ	1	. [- 1	- 1	.	ŀ			108		
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TABLE D-1
STATISTICAL HINDGAST DATA FOR LAKE ERIE STATION D. BUFFALO, N. Y.
Duration given in hours. Height and period groupings include lower value but not the upper.

MARCH

1,	Period	/-	2 !	Second	de	2.		Secon	da		* :	Secon	15	۷.	د می	Second		~ کی	4	Second		۷-	. 7	Second	15	.1-	7	Second	ls
HYIFERTH			<u></u>		Total					1948	1949	1950	Total	1948	1949	1950	Total			1950	Total	1948	1949	1950	Total	1948	1949	1950	Total
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TABLE D-I

STATISTICAL MINDCAST DATA FOR LAKE ERIE STATION D, BUFFALO, N.Y.

Duration given in hours. Height and period groupings include lower value but not the upper.

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2	W					24		. 12	36	ŀ	12	6	18	•			,								ŀ	24	.12	18	23
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HEIGHT (FEET		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total
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	_W :		12		12	30	12	24	66	,	,	0	-									36	18	30	
_	SW	-	16		10	12	18	46	168	-6	-6	24		<u> </u>		·		-				72	<u>60</u>	90	222
	b	-	1			6	18	12	36	6	12	12	18	12	2		24					18	30		48
2.3	W.		1	'		2	10	12	18	•	12	6	12	12		6	24					24	18	30	t
•	Todal				~	24	36	24		10	48	IR	78	12	2		24					10	12	18	36
	SW		<u> </u>			6			6	6	12	10	18	1.4			27				<u> </u>	12	12	~~	186
3-4		1		١.		12		6	18	12	30	18	60	-	_			/2			/2	32	30	24	90
3-4	LW								1	'	6	30	36					/2			/	-	6	30	36
_	Total					18		6	24	18.	48	48	114					12			12	48	48	54	150
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	Total									24	6		30									24	4		30
3.6	HSW									6	6		12	6			6					12	6		18
	WAL									6			6									6			6
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TABLE D-I
STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION D, BUFFALO, N. Y.
Duration given in hours. Height and period groupings include lower value but not the upper.

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- 1	WSW			.18	18	. 12		6	10	6		,	6		•			10		24	
· [w	6		6	12	24	10	30	72		4		6	l '			-	30	24		
	7060/	6	6	31	42	18	11	42	114	4	6		12	ļ				60	36		7
. 7	5W					./2.			12	6	. /2		10		_			/8	12		
. [WSW			· ·		/2.	_14		36	15	6	2	50					30	74	_(2	
f	W					18	.12	18	10	. 12		12	24		١.		l.	30	12	30	
	Tetal					#2	30	24		36	13	13	.72					74	18	12	4
	SW.			<u>. </u>	I				Ī.,		. 6.	6	12	١.	. :	l		,	6	6	١,
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4				<u> </u>						24	-6		30				<u> </u> _	. 24	6	ļ . <u></u>	
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HEIGHT (FEET)		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total
•	WSH	,	6	6	12														6	6	12
0.5-1	W	6			6	24			24	ŀ							,	30	-		30
	Total	6	6	6	18	24			24									30	6	6	42
_	SW	12	12		24	18			18				•					30	12		42
	WSH	6	12	ļ	18	6	.12	60	78	6		6	12				١.	18	24	46	108
1-2	W	30	6		36	54	6	12	72								İ	84	12	12	108
_	Total	48	30		78	78	18	72	168	6		6	12				L	132	48	78	258
	SH					12	6		18	18	}		10	1			1	30	6	. •	36
2-3	WSW			١.,		6	6.	18	30	6		6	12	1			ŀ	12	6	24.	12
2.3	_W_		ļ	١.		24		12	36	36	. ,	18	54	ľ		ŀ		60	٠,	30	90
	Tabel		<u> </u>	<u> </u>		42	12	30	84	60		24	84			<u> </u>		102	12	54	168
	SW						Ì			18			18	6	ļ	1	2	24			24
3-4	nsw						ļ			12			_12	6.			6	18			18
			'	1		l				18		12		ļ.				18	ļ	12	30
	Total			<u> </u>		<u> </u>				40		12	60	12			12	60	<u> </u>	12	72
	WSW		ļ	<u> </u>						12	6		18				Ļ	12			18
7	DTAL	.54	36	6	.96	144	30	102	276	126	6	42	174	12			12	536	72	150	5,58
	-	CA	LM							ľ		,						408	672	594	1674
		10	TAL	HOU	75	1		ĺ		ŀ	ļ					1					2232

TABLE D-1

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION D, BUFFALO, N.Y.
Duration given in hours. Height and period groupings include lower value but not the upper.

SEPTEMBER

	Period			Second				Secon				Secon				Second		l'		Second	is
ioht (fert)		1948	1949	1950		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949		Tot
, ;	SH			6	_6			ļ			 .								_ _,	6.	
15-1			12		-12-		ļ. ,							.			Į))	12		1.7
	W		6.		6	، ، ج			- 6			ĺ		١, ١		4		6	6	ŀ	14
,	Telal		18	6	24	-6	<u> </u>		6									6	18	6	3
1-2	HSW	<u> </u>	<u></u> ,		p	6	36	. 6	48	6	-		24			ha		.12	54	.6	<u>ج</u> إ
	·W		<u></u>			24.	- 1B	18	60	ļ	9		6		-		ļ	24	24	18	6
	Total					30	54	24	108	-	24		30					36	28	24	13
	SW					,		_6	_6	6-					. 40			. 6		6	1
2.3	HXH					.12.	12	- 6	30		_ 6		6.		·	1.2	.12.		10	18	4
	W					18	- 6.	<u>.</u>	30.		30	. 6	36					18	36	/z	6
; _	Total			-	-	30	18	18	66	-6	36	6	48			12	12	36	54	36	12
	MSH					6_	_6		12	12	_/2.		24		, ,			18	18		3
3-4	. 11					`€		_	12		12	.18_	30					6	12.	24	4
	Total			ļ		12	6	6	24	12	24	18	54					24	30	24	2
	HSW					:		<u></u>			6.	6	12	6			- 6	6	6	-6	1
4.5	W.										6		6		6	İ	6		12		1
	Tecal						,		<u> </u>	<u> </u>	12	6	18	6	6	,	12	6	18	6	3
	W.W.							ļ	L					6	. 1	,	6	6		· ·	
5.6	W_					, ,									6		6		6	l	. 6
	Total													6	6		12	6	Ė	<u> </u>	12
	W5W			ļ.,.,	<u> </u>	<u>-</u>	L .]_	-	l		6	. 6				-			6	. 6
6-7	-W_								L	<u></u>						6	6			6	6
	Total						<u>L</u>			<u></u>	·	6	6			6	6			12	12
7-8	_							<u> </u>		<u> </u>	<u></u>				6		6	,	6		(
10-HT	WSW		2-			ļ	<u> </u>	L	<u> </u>	<u> </u>		<u> </u>				6	6			6	_
. 7	DIAL		18	۔ کی۔	24	20	_20	40	204	24	96	36	156	12	18	24	54	114	210	114	# 3
		CA	LM	-		-									-			606	5/0	606	172
			TAL	HOU	200				·	١.	-				1	•		720		\$°	

OCTOBER 1

		,	•								,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,										
	Period	1-	2	Second	is	2	- 3	Secon	ds	.5	- 4	Second	is	7	-5	Second	is	/-	5	Second	is .
MEIGHT (FEET		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	.Total	1948	1949	1950	Total	1948	1949	1950	Total
ı	SW						36	96	72										36	36	72
•	WSK					6	30			. ~							·	6	30	/2	20
1-2	W					15	12		1 - '		6	6	12				,	18	18	60	96
_	Zate					24	70	102	204		6	6	/2				Ĭ	24	81	100	216
	SW						12	24	36			6	6				Γ.		12	30	72
2-3	Je 514)	12		6	18			/2	/2				}	12		15	30
- J	W			:	Ì	6.	6	. 12	54	/2		24	36				1	10	4	66	70
-	Tatal				<u> </u>	18	10	72	100	12		12	59					20	18	119	162
	-5W			 		6			6			18	18					6		18	24
3-4	WS.K.	L					6		6	6			6				· ·	6	6		/2
J-7	W										18	12	30				١.		18	/2	30
	Tatal			<u> </u>		6	6	<u> </u>	12	6	10	.50	54					/2	24	30	66
7-5	W										/2	-6	18						12	6	18
•	-SW	L							. ,	6			6				<u>.</u>	6			1.6
5-6	W.			<u></u>				١		ľ	6	6	12] ` [6	1	12
_	Teta/					<u> </u>	<u> </u>			6	4	_	10	L		L	<u> </u>	6	6	. 6	18
	5.W.				. (1)			6		6				1		6		2
6-,7	W_				Į,	Į		[[l						12	./2			12	12
	Tabe/						L	<u> </u>		<u> </u>	6		6			12	/2		6	/2	18
7-8	511		<u> </u>			<u> </u>								6	6	L	12	6	6		12
10-11	W	<u> </u>				<u> </u>	<u></u>	<u> </u>			<u> </u>			6	6	<u> </u>	12	6			12
て	QTAL.	ļ. <u>.</u>				18	102	121	324	24	.75	90	162	.12	12	12	36	.84	162	276	532
	<u> </u>		- '					ĺ	1				İ ,			ĺ		į.			ĺ
	<u> </u>	CA.	LM.			ļ												660	.5282	1.68	1710
		7:0:	AL	H.	DUR	S			-	1		ļ		ŀ.		ļ	٠	7.47	711	777	2232
	1 .	ľ	J	ļ	1	ľ	ļ	ļ	Ι.	l	!		i			ĺ	1	l		1 1	ì

TABLE D-I

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION D, BUFFALO, N. Y.

Duration given in hours. Height and period groupings include lower value but not the upper.

NOVEMBER

	Period	/-	2	Second	is	2	-3:	Second	3	3	-4.	Secon	ds	4.	- 5	Second		5-	6 S	econd	,	4	·- 7	Second	s	1-	7 9	Seconds	
EIGHT (FEET)														1948								1948	1949	1950	Total	1948	1949	1950	Total
P5-1	HSW W Toda/	6		6	12					6			6									•				6.		6	12
1-2	WSW					18	12 36 48	24 6 30	54 42 96	6	12	12	30		6		6						-	- ,		18 6 24	18 48 66	24 18 42	60 72 132
2·3	Win					18	24 12 36	12	36 42	6	12 6	12 24	30	6		6	30					-				18	54 18 72	24 36 60	96 72
3-4	WS W Today		 -	-		66	3-	78	66	12 18.	6	6 6 12	24 24 48	6	6		12		6		. 4	-				24 24 18	18	6 12	48 30 78
4-5	HOW								10-	6	18	12	30	12	6	6	18 24			6	6					_6 /2 /0	24	18	42 30 72
5¥	WSH	1								6			6	12			12		18	;	18			1		18	18		30 36
6-7	SW USU	1									6	64	6 6 12	6	6	12						}·	- -			6	12	10	18 36 60
2-7	Total	'	-	┼	+	-	+	-	┼	┼─	12	12	24	12	1/2	12	36		12		12	-	<u>, </u>		1/2	_	/2	6	24
8.9	1154		1		†						!									6	6		-		- 6		-	6 12	6
9-7	TOG	4	+	+	+	+-	+	-	+-	+	╁	┼	i -	+-	 		╁	-		6	6	+	+		6	+		6	6
•	4-14	;	+	+	+-	1_	1	1										6		6	-			Ţ		6	6	6	10
	1 07A	4		6	12	54	1 84	48	184	60	66	90	2/6	40	40	24	120	6	12	24	72			1/2	14	100	240	201	624
	-	1	ALM]		:		Ì	1									<u>.</u>	-	-		1			5/6	
		. 72	THE	Ma	25			i	İ		i	ļ			,	1.			ŀ	ľ	-	-	1-		+-	1/20	726	120	

DECEMBER

r										··			 -1		EMB														
Į	Period		-2	Secono	is		-3				7-4:					Second				Second			6-7				-7 g		
HT (FEET)		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Tot
· [MSM			. /2			[[. 6	6	l	l			.		.		.										10	-4
-1	W.	6			6																					. 6.			١.
	Zere/	6		_/2	14			-6	_6	 	\vdash								<u> </u>	<u> </u>					 	-6	\vdash	18	تما
ļ	511			ļ		/2		. [12							•		.	١.							12.	 +		
-2	WFM	: ــــــ		١.	l	24		36	60	6	6	12	24		6		٠ 6		ļ		ļ					30.	- 42	13	-
- ļ	_W			ļ	Į.	12	24	36	102	6	/2	6	24		٠		ا					ł	l		ļ	10	.36	7.2	1
	Tital			<u> </u>	├ —	18	24	. 72	171	12	18	13	10	_	6		-6		 						├	90	13	20	2
	WSW				1		18	12	30	1	6	31	36						1	ŀ	1	Ì	}	}	1		24	12.	-
. 5	W.	-		[1	12	6	18	36	6	12	15	36						1	ľ		ŀ			<u>.</u> .	18	18	36	Ļ.
	Take/		-	 	 	12	22	30	66	6	18	18	72						 				ļ		 	18	12	78	1
	W.SW					.6	6		. 12	-	/2	/2	27	6					l	Į .				٠.		12	18	. /2.	┝
4	<i>W</i>			1	Į.	[6	6	18	30	24	72	6			٤		ľ				1	ŀ		24	30	30	-
	Total			<u> </u>	ļ	-6	6	-6	18	18	12	36	96	/2		-	12		├	├	 _		-		 	134	7.5	#2	۲
	WSW		Į.			ŀ				13	18		36		6		6		6	1	6.	-				18	30		ŀ
-5	_W			Į .	ŀ					6	15		54	6	6	ļ	12		١.	ļ	١.		1	ŀ	Į	/2	-57		ŀ
_	Tatel		ļ	ļ		ļ	<u> </u>			25	-66		20	6	12		18	ļ	-6-	 -	-6	 	┼—	 	 	30	84		╀
	5W		-		1	ļ				١.		6	6	ľ					İ	ŀ	١.	ļ.		ŀ	1 .			6 .	ļ.,
5-4	WSW	٠.	ļ	1	ļ	[6	١.,	6	6	6	6		12	6	1		0	1	6	٠.	6	.18	1 1		ļ.
5-6	_W.		1	l	1	1	ļ			6	1	6	12	6	1/2	1			1		١.	ļ .	1 .	٠.		12.	1	18.	
	Total	L	<u> </u>	<u> </u>	<u> </u>	L	<u> </u>		L	/2		_/2		12	13	12	72	6	ļ	<u> </u>	6		6	<u> </u>	-6	30	-53	24	
	WSH	ł.	ŧ		Į.	ľ	i	i i	l	12	1		12	6	l .	i	6	l	1	1	1	6	1	ľ	. 6	24			1
6-7	_W					1	!		1	1	l		1	6	6	į	12		١.		1	Ι.			1	6	6	ļ	ļ
	Total		<u> </u>				<u> </u>	1	<u> </u>	12			12	12	6	<u> </u>	18	ļ	 	ļ	↓	6	ļ	-	1.6	30			ļ
	WSW	1	l	1		1.	1		i	1.	[l	12	į	ļ	12		l		1	[Į		1.	12			į.
7-8	_W.	Ļ	1	1	1	Į	1		1	Į	1		1	6	1		6	Į.	1		l	1		4		. 6			ŀ
	Total	1		<u> </u>	ļ	 	ـــ	<u> </u>	}		·		<u> </u>	18	 	<u> </u>	18	Ļ	 	 	ļ.,		↓	┞	 	18		 	+
9-10_	MSM	1	<u>i </u>	<u> </u>			-	<u>i </u>	<u> </u>	4	-	<u> </u>	<u> </u>	 	ļ	<u> </u>	 	┞—	6	-	16	<u>ا</u>		 -			6	├ ──	+
10-11	WW		<u> </u>	1		1	1	· 	<u> </u>	1	<u> </u>	1	 	<u> </u>	i	<u> </u>	}	├	┼—		-	-	6	-	1		6	 	+
11-12_	WSH	<u> </u>				1	<u> </u>	!	<u> </u>	نـــــــــــــــــــــــــــــــــــ			1		<u> </u>	<u></u>	ļ	ļ	-	-	1-	6	 	 	6			ļ	+
13-14	MAN	<u></u>	1	1	1_		1		L		!		1	<u> </u>	<u> </u>	1	 	6		 	6	4	4	<u> </u>	4_	16		<u> </u>	4
70	TAL	6		12	10	96	.54	114	26	4.81	144	114	342	60	72	: /2	144	12	12	·	2.4	1.2	_/2	-	24	1 270	294	252	4
	<u></u>	ļ	1	i		1	ì i	1	j	1	1	}		ĺ	í	í	1	1) .	ŀ	1	1	1		1.	1			
•	<u>_</u> .		4.11	İ.	1	1		1	i	1	i			1	ļ	ì	1	1	-		1	1	1	} .	-		1 450		
	L	10	TAL	110	URS		1	j		1		•	ė.	t		i	-	١.	ı	j.	1	ľ	·]•	ĺ	1	744	F) 744	744	4

TABLE D-2

STATISTICAL HINDCAST DATA FOR LAKE ERIE STATION D, BUFFALO, N.Y. FULL YEAR Durotion given in hours. Height and period groupings include lower value but not the upper.

						:		·					<u>-</u>									-			,				1
	Period		-2					Second			7-4				4-5					second				Second				Second	
HEIGHT (FEET)		1948	1949	1950		1948	1949	1950		1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948	1949	1950	Total	1948			Total
	788	12.	6	_ 6	24	•		6	12				ا ا				.					,	ŀ	٠.		10	6	/2	36
0.5-1	H)H.	12	18.		60			6	4	6			6				ŀ			.	٠ ا		İ			10	18	36	72
	-W_	36	24	36 72	96	30		ا ا	30	6			6					İ			.		ļ			102	~ , ,	36	126
	Tara	18	48	6	180	96	84	12	<u> 18</u> 228		6		5										 		·····	1/4	108		272
	.SW.	12	18	24	54	126	174		522	48	48	48	144	6	12		18							·		192	252		738
1-2	WSHV.	60	30	10	108	282	168	288	-	36	78	48	162		' -		1			1						378	276	, , ,	1008
	Tarlet	90	166	48	2	504	426		IABA	84	132	96	3/2	4	12		10	١, ١		- 1			ľ			600	636	702	-1
	SH					66	60	-	168	60	49	12	120													126	100	54	280
2.3	MSM		()			96	162	90	348	66	84	90	240	24	72	30	126			1	1	1		ľ		186	3/8	210	7/4
23	W.		,			156	90		420	150	144	150	444													306	, ,	324	864
_	Total					3/8	3/2	300		276	276	252	804	24	72	30	126		,					<u> </u>		618	660	588	1866
	.SW					/2			12	42	30	30	102	12			12								,	66	30	30	126
34	W.W.			ļ.		36	24	12	72	138	156	66	360		54	18	102	12	6	•	18	·				2/6	240		552
- /	LW					12	6	10	36	132	150		1	12		18	30	l i								156	156	192	504
	Total		<u> </u>		<u> </u>	60	30	30	120	3/2	336	<i>25</i> 2	900	54	54	36	144	12	6		18		ļ	<u> </u>			426		1182
	SH			l			ļ			48	1	12	1						İ	1			ŀ	ŀ		48		12	60
45	WSW					1			1	84	126		270	18	36	12	1 .	6	60	6	72				ľ	108	222		400
	-11			ŀ	1	١.	ļ		l .	72	144		3/2	24	42		84		,	ارا			ľ		1	96	186	1 1	396
	Total			 	 					204	270	168		42	78	30	150	6	60	6	72		 	 		252	400	204	864
	SW.			ŀ	l	i		1		6	į	. 6	,	6	ارسا	6	12	ا . ـ ا			. 50	İ	1	100		72		60	24
3.6	WSW				ľ	ŀ		!	İ	18	12	24		48	•	12	96	12	24	12	18	-	- 6	!2	18	78	78	72	216
	W			l	1			1	Ì	42	36	18	150	30	120	54 72	276	18	30	12	12		2	12	18	78	114		264
	Tobal		 			 	 	· · ·	 	/2	*****	- Te	-		160	-12	,	10			6		1	7	10	19	18	6	42
	5W		1	٠.	i	ŀ	ŀ	1	ŧ	30		20	90		36		78		12		12	12			12		78	48	192
6-7	W5W W	ŀ	ĺ	ĺ			ţ	i	•				48		30		162	6	12		6	12		1	/~	72	48		216
	Today	ŀ	1	-		ľ	ļ		1				162		66	96	250		18		24	12	i	!	12	156		1 . !	450
	SW		\vdash		: 	1			 	-		1	+	6	-6		12						1			6	6		12
. 20	WSW		1	1			† 1	•				•	•	12	18	12		ľ '	18		18	6		6	12	18	36	18	72
70	W			i	i	ľ	1				•	• ,	1		18	:	42		6		6		ì			24	1 - '		48
• _	Total		!	1	;	l	1		1	<u> </u>			!	42	42	12	96		24		24	6	<u>!</u>	6	12	48	66	18	132
_	WSW						,	: •			:	Į.		18	,	. 18	36	6			12			12	12	29	6	30	60
8-9	L.W		1	:			i			ŀ		i		6	12	12	30	6		6	18	r	ì	1		12	18	18	13
	Tolal		!	<u> </u>		1	:			<u> </u>			<u> </u>	24	/2	30	46	12	12	6	30		1	12	12	36	24		100
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-	Teste/	 			; 	 	-			 		<u>.</u>	·	22	12	12	18	 	-6	21	30	 	-	+-		24	18	36	28
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TABLE D-3

STATISTICAL HINDGAST DAYA FOR LAKE ERIE STATION D. BUFFALO, N. Y. (CE-FREE PERIOD (| APRIL - 30 NOV.) Duration given in hours. Height and period groupings include lower value but not the upp

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.	5	w	/2	6	2	24	1370	1949	1950	10101	1948	1949	1950	Tota	1 1941	1949	1950	Tota	1946	1945	1950	nds Total	1948	1949	1950	Total	1948	1949	Secon	ds Teast
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	Total	1						.	1.	.	ľ	- 1	- 1		- 1		- 1	- 1	6	6	6	18				- 1	6	4	. i	18
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10-11	_W_			. i	-						- 1	- 1			6	61	-	6	6	4	12	24		-		1	6	6	18	30
11-12	Total	-	+	-1		<u> </u>		_					;		6	6	اء	12			,_!			i	İ	- 1	6	6		12
#	TAL		96	78	90							$-\Gamma$						-			12	24			6	-,-	12	<u>/z /</u>		42
1	// /	· ·	. احد	10.	70	264	1	72 0	530 /	780 3	40 5	76	180 /	596	162	192 1	501	504	24	14	10	106	4			24	40.		6	ے
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TABLE D-4

STATISTICAL ENERGY DATA FOR LAKE ERIE STATION D. BUFFALO, N. Y.

ICE-FREE PERIOD (I APRIL - 30 NOV.)

Energy given in foot-pounds per foot of crest per year x 10⁻⁴. Height and period groupings include lower value but not the upper

eight feet)		/-2 Seconds	2-3 Seconds	3-4 Seconds	4-5 Seconds	5-6 Seconds	6-7 Seconds	/~7 Second
	51/	48					•	48
F-/	HSW	83		28				///
	W	95	101				٠	.196
	Total	226	101	28				355
	SW	267	2082					2349
	WSW	3/2	5285	1582	145		1 ,	7,324
-2	W	534	6245	1808				8,587
	Takel	1113	19.612	3390	145			18,260
	54		4,144	3 436		- 1	-	7,580
_ •	WSW		8942	É 433	6,456			23,83
2-3	W		10.905	11,868				22,77
	Total		23,991	23,737	6.456			54,184
	5W		829	6,683	789			8,30
3-d	usw		3,3/8	24,300	8677	2901		99,190
J- y	W		1,244	23,086	789			25,119
	Total	· ·	5,391	54.069	10,255	2901		72,610
	511			1,988				1,988
1.5	WSW			27,837	5,196	12780		45,8/3
	W			15,907	7795			23,702
	Total			45,732	12,991	12.780		71,50
	5W			1,466	1,932			3,376
5-6	WSW			5,864	15,454	11.896		33,214
	W			7330	5,795		4	13 12:
_	Total	;		14.660	23.181	11,896		49, 73
	5W			4,032	2,683	3315		10,03
6-7	WSW			16,126	16,099	3,315		35,54
•	w_			8.063	32,197			40,24
-	Total			28,221	50 979	6,630		85,83
_	5W				7.098			7,09
7.4	WSW				14,195	13202	10,461	37,85
, 0	W				7,098	a magazana ar da sala .		7098
	Total				28 39/	13.202	10,461	52,05
	WSW						6,707.	6,70
8-9	W					16,901	L <u></u>	16,90
	Total					16901	6.707	23,600
F10	W				1/203	21032		32,23.
	W5W				6,779	34,114		40,89
0-11	W				13.559	-		13,55
	Total				20,338	34114		54,45
11-12	WSW				-	•	12,198	12,196
								
70	TAL	1,339	43,095	167,837	163,939	119456	29366	527,032

TABLE D-5 STATISTICAL ENERGY DATA FOR LAKE ERIE STATION D, BUFFALO, N.Y.

FULL YEAR

Energy given in foot-pounds per foot of crest per year x 10⁻⁴. Height and period groupings include lower value but not the upper

ight	Perio	d.				***************************************		
net)	Dir.	/- 2 Seconda	2-3 Seconds	J- ≠ Seconds	4-5 Seconds	5-6 Seconds	6-7 Seconds	/- 7 Second
I	SW	18_	4.0				,	88
-/	14/2014	// 9	20	28				167
1	w	190_						
-	Total	357	161	28	:			546
	5W	3/2	3,043					3,4-60
ا ر.	WSW_	401	. 6,966	2,712	437			10,51
~	W	801	9,849	3,0.51				13,70
	Tata/	. 1514	19,858	5.376	437	:		27.68
	SW_	-	6,107	6,247				12,35
ا ج	WSW		12,650	12,493	8,474			33,61
ا ح	W		15,267	23,//2				38,37
	Tetal		34.024	41.852	8474			84.35
	5W		829	10,328	1.578		***************************************	12,73
	WSW		4.776	36,452	13,410	2,901		57,73
<i>'</i>	W	·	2,488	44,350	3,944			50,78
	Tate/		8293	91,130	18,932	2901		12125
	5w			9,942				9,94
ر ج	WSH _			44,739	14,290	19,171		78,20
٦ ا	.w	***************************************	*	51,698	18,18.7			- 69,88
	Tala			106,379	32477	19.171		158.02
	5W			2,932	3,864			6,79
	W5W			13.19.4	30,909	19.034	. 8,461	71,59
اء-	W	٠		20.523	54.02/	4.759		
╝	Talel			36649	88864	23.793	8461	157.76
	SW			8063	5.366	3.315		16.74
1	WSW			30,237	34,880	6630	7,869	79,61
7	W			16,126	72,443	3.3/5		91,88
	Tate/			54.426	112.689	13.260	7.869	188,24
	5W				7,098			7,090
	WSW				24842	13.202	10,461	48,50
-8	W				24.842	4.4.01.		29,29
	Total	***************************************			56.782	17.603	10.461	82.84
	WSW				27.143	11,267	13.413	51,82
ا و	w	·····			22.6/9	16,901		39.52
1	7061	****	· · · · · · · · · · · · · · · · · · ·		49.762	28.168	13.413	91.34
	WSW	···			16.805			16,80
10	W		•		28,008	35,054		63,06
	Total				44.8/3	35.054		79.86
_	WSW				13.559	12.643		68,40
.,,					27,/18	8.529		35,64
"	Takel	· · · · · · · · · · · · · · · · · · ·			40.677	5//72	12.198	104.04
	MSW	 			· · · · · · · · · · · · · · · · · · ·	10,182	24,396	34,57
/2	W					10.182	2,1 ·	10,18
_	Total					20,364	24.396	44.76
-/3	WSW		<u> </u>			11.969		11.967
	WSW					13.885		13.88
_	W					18,077		18.07
	WSW		 			10,011	47.517	49.51
	 ~~~ -		<u> </u>				7,5//	T/2/

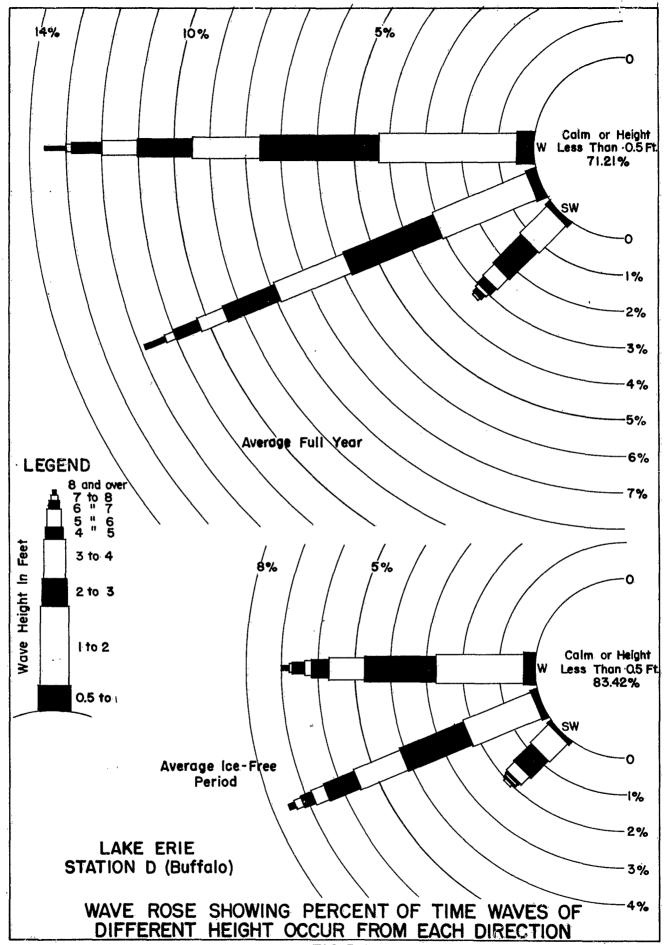
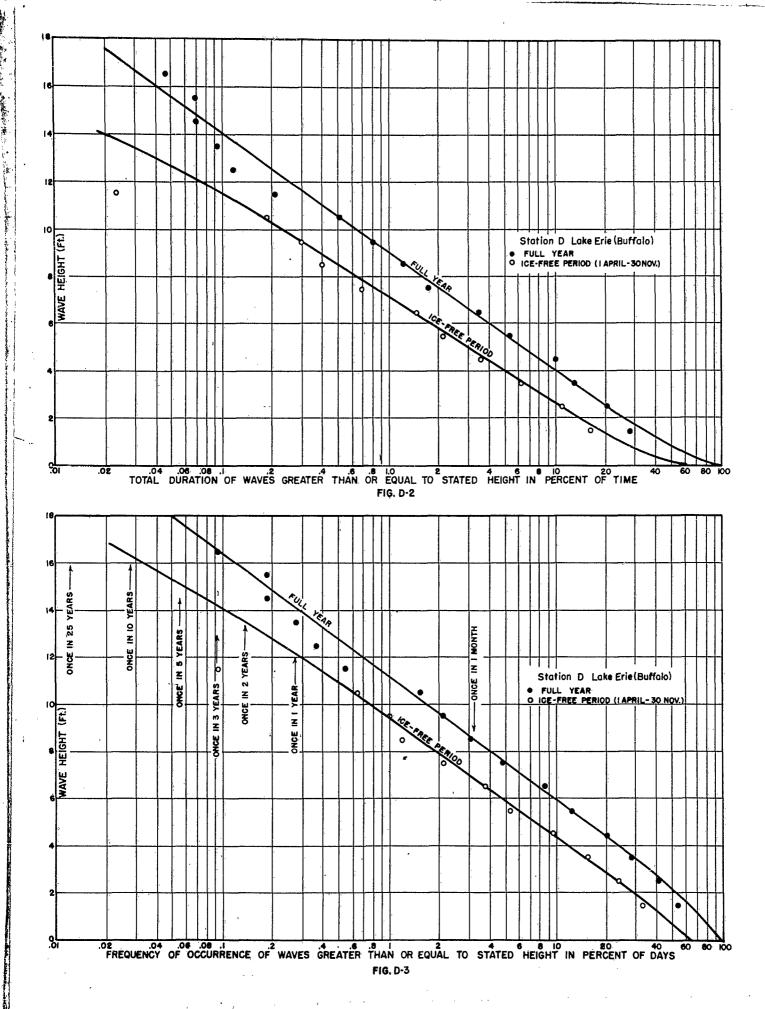
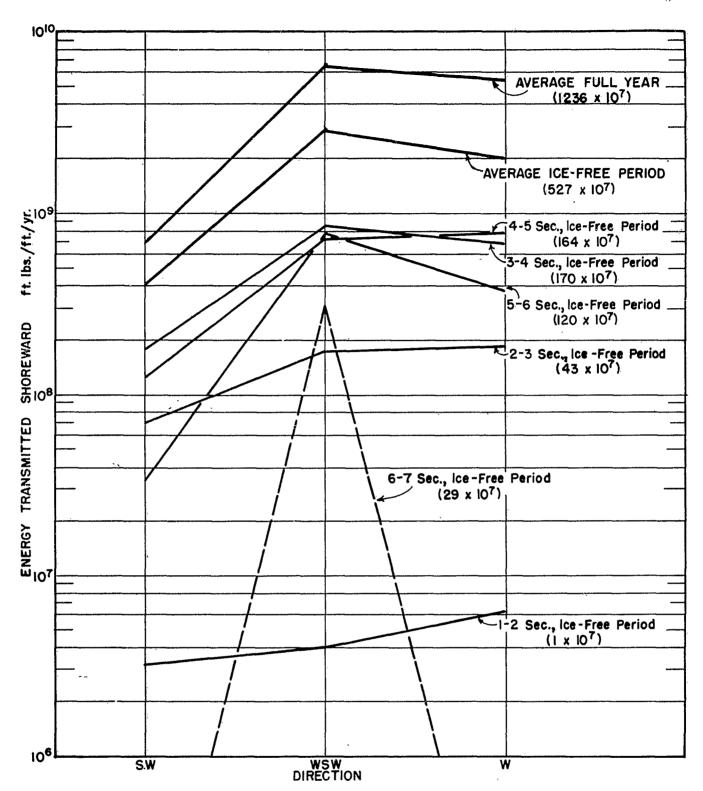


FIG. D-I





AVERAGE AMOUNT OF ENERGY TRANSMITTED SHOREWARD PER FOOT OF CREST LENGTH PER YEAR, IF WAVE SYSTEM IS CONSIDERED AS AN HYPOTHETICAL UNIFORM SYSTEM COMPOSED OF WAVES OF SIGNIFICANT HEIGHT AND PERIOD ONLY.

LAKE ERIE - STATION D (Buffalo)

FIG. D-4